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EDITED BY

SIR JOHN W. MOORE, M.A., M.D., M.Ch. DUBL., D.Sc. OXON.,

EX-PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND,
SENIOR PHYSICIAN TO THE MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY,
CONSULTING PHYSICIAN TO CORK-STREET FEVER HOSPITAL,
EX-SCHOLAR AND DIPLOMATE IN STATE MEDICINE
OF TRINITY COLLEGE, DUBLIN;

and

T. GILLMAN MOORHEAD, B.A. M.D., DUBL.,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND,
PHYSICIAN TO THE ROYAL CITY OF DUBLIN HOSPITAL,
CONSULTING PHYSICIAN TO THE CLONSKEAGH FEVER HOSPITAL,
DIPLOMATE IN STATE MEDICINE.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. I.—*Some Remarks on Dyspepsia.*^a By B. G. A. MOYNIHAN, M.S., F.R.C.S., Leeds.

THE subject which I have chosen for the lecture by which you have very kindly asked me to open your session is "Dyspepsia." It is one which necessarily holds interest for you all, inasmuch as the condition confronts you almost daily in your practice, must often give you cause for anxious inquiry as to its origin, and must sorely perplex and baffle you in your earnest efforts to afford relief to your patient. At the present time there are surely few subjects so much in need of careful investigation from every side, for by degrees a change of the most radical character is coming over our views of the essential nature of this most prevalent disorder.

I will ask you to look back for a few moments upon the views of this condition which were expounded with so much care, and with such wonderful eloquence, by the physicians of fifty years ago. Read for your own delight the works of Brinton, Johnson, Abernethy, Abercrombie, Watson, Trousseau, and others who observed with the most eager

^a An Address delivered at the opening of the Trinity College Post-Graduate Course in Dublin, on Monday, June 6th, 1910.

and exact attention, who recorded with the strictest accuracy, and who discussed the symptoms they so fully detailed in a spirit of the most patient analytical inquiry. There are few writers of To-day who can match the artist in words of two or three generations ago, there are none who can unfold the tale of symptoms and of signs in a clinical history with such sustained eloquence and in a manner so calculated to awaken and enchain our keenest interest.

The first principle in the creed of all these writers and of many others—a principle never for one moment held in doubt—was that the great majority of cases of “dyspepsia” were functional in their origins, that they were due, that is to say, to some vice in the secretion, or some disorder of the sensation, of one or other of the abdominal viscera. Johnson speaks of a “morbid sensibility of the stomach and bowels as the proximate cause or characteristic condition of indigestion;” others, of undue or untimely secretion of the gastric juice; and Brinton defines dyspepsia as a “difficult character of digestion unexplained by structural lesion.” The perfect accuracy of the descriptions given by these various authors enables us now to realise that the symptoms which they so faithfully depicted were due to organic diseases, to lesions having their place in one or other of the viscera lying within the abdomen. The opportunities, even a generation ago, for any inquiry into the morbid conditions giving rise to sustained ill-health were very few, and it was usually only the sudden or dramatic death of the patient which gave the opportunity, or furnished the need, for a *post-mortem* investigation. It is true, I believe, that Brinton, whose works may still be read with profit and with unflagging interest, foresaw the time when the majority of the cases of protracted dyspepsia would be known to be dependent upon structural disorders. For this is what he wrote:—

“As the progress of scientific medicine has gradually revealed the morbid anatomy of the digestive canal, and thus detected structural disease with increasing accuracy and frequency, the vague (but useful) term ‘dyspepsia’ has acquired a continually more restricted meaning. Nor can we doubt

that it is destined to still further limitation ; and that, as advancing knowledge brings us better means of investigation, and so enables us to discover and distinguish structural changes of which we now can only observe the functional results, the aggregate of maladies called dyspepsia must undergo successive subtractions, tending more or less completely to its total subdivision into special maladies, and to the removal of this term from our nosology."

The theme which I wish to-day to expound is based upon the knowledge that the work of the surgeon during the last ten years has conferred upon him the opportunity of discovering that a very large proportion of the cases of dyspepsia owe their origin not to functional but to organic causes. What the proportion of the cases owning a structural origin may be it is not possible to say, but I am confident that it will not be long before, in any given case of inveterate dyspepsia, we shall require to be furnished with valid reasons for believing that the cause of the condition is anything other than a morbid change in some of the abdominal viscera. The tendency, that is to say, will surely be to regard all such cases as "organic" rather than "functional," and to lay the burden of proof upon those who cling to the latter view. I often hear it said that the surgeon is "encroaching" upon the territory of the physician in his dealings with the serious forms of dyspepsia. This is a foolish way of viewing the question, for the distinction between medicine and surgery—the divorce of brain from hand—always arbitrary, is here impossible. If the surgeon is able to demonstrate that many of the forms of dyspepsia are veritably organic in their origin, it would be idle to deny that the treatment of the case must change with our changing knowledge. I will ask you to-day to consider with me three forms of dyspepsia, the origin of which in organic lesions has now been conclusively demonstrated.

The first type is this : The patient is generally a male of from twenty-five to fifty years of age : he may be of full habit or even stout, although in the advanced stages of the disorder he often becomes thin and wasted, and "wears a

lean and hungry look." He will tell you that he suffers from indigestion in "attacks," and that these attacks are nearly always worse when he is chilled or wet, and that the winter months have more terrors for him than the warmer and more clement months of summer and early autumn. An attack is precipitated by overwork, worry or a chill, and may begin abruptly, and end as quickly. The periods of distress are marked off rather sharply from the times of ease and good health. In the intervals he is well, feels full of vigour, eats, it may be, unsparingly and with unchecked enjoyment, knowing that for the time at least he is secure in his good health. Then, with little warning, or with a discomfort of short duration and of no serious account, an attack, ascribed to one of the causes I have named, begins. The patient then will tell you that after his heaviest meal in the day (in Yorkshire for most people the mid-day meal is a substantial dinner) he feels quite easy for two hours or thereabouts. Then a dull sense of oppression or fulness is noted in the epigastrium. A burning, gnawing sensation develops, and there is a bitter taste in the mouth with, it may be, eructations of food or gas, bitter and acid in taste. The pain, which gradually increases, may be relieved, often considerably, by belching or by pressure. As it increases in severity it strikes through to the back, to the right of the middle line, and it may radiate round to the right side of the chest. As all patients discover for themselves, the taking of food relieves the pain, so that many carry a biscuit in their pockets, or take milk, a dose of an alkaline medicine, or some form of food, as soon as the uneasiness develops. In several cases in which I have operated the pain has been more severe than this has been, in fact indistinguishable from a mild form of hepatic colic: the patient describes the pain which comes constantly two or three hours after food as a "colic" or a "spasm." It is not improbable that a spasm of the pylorus is actually present, for such a condition may subsequently be seen during the course of an operation. The pain, it will be noticed, comes on at a time when the patient should be beginning to feel hungry for his next meal; for

this reason the term "hunger-pain" which I suggested in a former paper seems quite appropriate. The interval of relief after a meal varies chiefly according to the character of the food taken. The more substantial the food the greater the interval of relief. The appetite is generally good; in fact often better than the normal if stenosis has not developed. It is not unusual for a patient to say, "I've a good appetite, I can take anything, and I never vomit."

After, it may be, many years of such experiences as these, severe attacks being followed by periods of comfort, the patient may find that the regular and orderly sequence of events is checked. Where method was, caprice appears; pain comes early or comes late, vomiting becomes frequent, and is a striking and often self-sought mode of ensuring relief. The final stages, those of obstruction, are, however, relatively of little interest, for they are preventable, and are nothing but an evidence of neglected opportunity to afford relief in an earlier and a simpler phase. This clinical history you will find not perhaps so fully given, but still sufficiently so for easy recognition in many of the older works I have urged you to read. Johnson, for example, on pp. 22 and 23 of his work, which was based not only upon the wide experience which a large practice gave him, but also upon long and bitter personal anguish, gives all the essential outlines of this picture. This is the history, and these are the symptoms of "acid dyspepsia." "Only that and nothing more," as one of more courage than culture has written. Yet something more it means; it means without any slightest doubt the presence of an ulcer in the duodenum. It is to be counted among the notable achievements of modern abdominal surgery that the condition characterised by the presence of this group of symptoms has been detached from the list of functional disorders to be ranged with those of an organic origin. It is now, I think, generally admitted that duodenal ulcer, far from being a rare disorder, is one of common occurrence, and that, far from being difficult, it is remarkably easy of recognition. Of many points in connection with it we are, however, still in doubt. We do not know why it is

that the pain of which the patient complains does not appear for two hours or more after a meal. It used to be supposed that during this period of ease the pylorus remained closed, and that it was only at the moment of its first relaxation that the contact of the acid chyme with the open ulcer aroused the sensation of pain. Dr. Arthur Hertz has shown, however, that food begins to pass from the stomach to the duodenum within a few minutes of the beginning of the meal, and continues to do this throughout the period of gastric digestion. It is not mere contact with food, not the chafing or the fretting of the ulcer, which is responsible for the pain: it is rather in all probability the contact of a gastric juice of some peculiar acidity that is the cause. The rapid onset of the symptoms in a new "attack," and their sometimes abrupt disappearance at the close, show either that the ulcer heals readily and as easily breaks down or that the presence of symptoms is due not alone to the open ulcer but to the contact of its surface with some food-stuff of singular acrimony. That this latter explanation is the more plausible is supported by the fact that in the quiet interval between attacks I have more than once excised an ulcer from the duodenum to find its base and terraced margins in an unhealed and active condition.

Having made, upon the evidence of these symptoms alone, as you are quite safe in doing, your diagnosis of duodenal ulcer, what is to be your method of treatment? To relieve the attack is easy. The limitations of the food to fluids only, the administration of an alkaline mixture with or without bismuth, and the counsel to rest, if possible to go away for a quiet holiday in a warm climate, will secure an abatement of symptoms. It is common to speak of the ulcer then as healed and the patient as "cured." Most of the patients upon whom I have operated have been "cured" at least half a dozen times. The common interpretation of the term "cured" may be learnt from the exemplary instance of its use in the *British Med. Journ.*, 1910. Vol. I., p. 1220. Relief of the symptoms in an attack is simple enough; the cure of the patient is a more difficult matter. I do not think there can

be any doubt that in cases of chronic duodenal ulcer the only satisfactory method of treatment is by operation. In the very great majority of cases gastro-enterostomy must be performed, for the ulcer will be found in such a condition that any measure other than the making of a new outlet from the stomach can afford no prospect of permanent relief.

Take now another type of dyspepsia which attacks the patient, usually a female a little inclined to obesity, at any age from twenty upwards. The complaint is of "indigestion," of a sensation of weight or oppression in the epigastrium. The patient will frequently place the closed fist immediately below the sternum and say, "I feel as if I had a load here." This sense of discomfort—for as yet it is nothing more—comes usually a few minutes after the meal is over, nearly always within half an hour: it may prevent the patient from eating more than a few fragments of the meal, as she is already "full," and all sense of hunger is appeased. There is almost always grievous complaint of fulness, of flatulence, of distension; the patient will say that she is "blown out with wind," and so distressing may this feeling become that the clothes are all made loose about the waist or removed in order to give relief. Ease comes for the moment if wind escapes from the stomach, and not rarely the amount brought up is remarkable in quantity. After a brief period of ease the sense of over-distension of the stomach and of constriction by the clothes will reappear, and again large volumes of wind are emitted, or vomiting may be induced or come spontaneously to give some mitigation of the severe distress. At this time the patient may complain of burning and of "acidity," and, as Ewald showed long ago, there may be some excess of acid in the gastric juice. "Acidity" is indeed the chief complaint of a few of the patients. So excessive may the production of gas be within the stomach that the patient is unable to breathe deeply—is unable, that is, to allow a free descent of the diaphragm, and the respiration is shallow and rapid. The attempt to take a deep full breath is painful, and the patient will often speak of having a "catch in the breath." The brow may be cold and covered with a clammy

sweat, and the expression of the face may be alert and anxious. In probably the majority of the cases there is a complaint of chilliness, of "gooseflesh" when the distress is at its height, and presently a feeling of warmth replaces that of cold, the skin burns and gradually becomes moist with a slight or profuse outbreak of sweat. After a severe attack of this kind the body may feel sore and stiff and bruised for a day or two. Some article of diet will be blamed for the onset of the attack—apples, for example, or any fatty or greasy food; and so constant is the repetition of the painful seizure after the ingestion of these foods that the patient becomes convinced of their relevancy in deciding an attack. One by one several of the offending articles are discarded, and the patient may then say that she is free from "indigestion." A little inquiry will, however, elicit the admission that great care has always to be exercised in the choice of food or penalties would quickly follow. Finally one attack comes of greater severity than all before, and the characteristic symptoms of hepatic colic are displayed. For the cause of all the "flatulent dyspepsia" has been the presence of stones within the gall-bladder. Of the frequency with which stones lie indolent and harmless within the gall-bladder different opinions are held. My own confident belief is that stones never lie in the gall-bladder without causing such a disturbance that their presence should be easily recognised. It is often said that the first announcement of their presence is an attack of hepatic colic. In the many hundreds of patients whose exact histories I have obtained before operation, there is only one of whom this was true. A very sharp attack of colic with a distension of the gall-bladder to the size (apparently) of an orange was the first inkling the patient received of any disease affecting his abdominal viscera. Such a case is of the rarest kind. Not long ago I visited the wards of a large hospital and was shown a case of cholecystotomy for the impaction of a stone in the cystic duct. The patient was operated upon in the acute stage of his illness, about forty-eight hours after the onset of an attack which was said to be the first experience he had ever had "of any-

thing wrong inside his abdomen." I elicited from him a very perfect history, such as I have just related to you, which showed beyond doubt that the stones had been present in his gall-bladder for several years. It is, therefore, with the rarest exceptions—exceptions indeed so few as to be almost negligible—that stones lie within the gall-bladder without causing these easily recognisable symptoms which I have recounted. An attack of hepatic colic does not inaugurate the symptoms, it is the closing and the most dramatic act in a series of events that have lasted, it may be, for many years. These early symptoms of cholelithiasis agree closely with those of the "flatulent dyspepsia" of the older writers; it is due to the surgeon that their attachment to an organic lesion has now been made certain.

With reference to the treatment of this condition, the position is, I think, a very simple one. When the presence of stones within the gall-bladder is recognised at an early stage, as it can be in the vast majority of cases, two alternative modes of treatment may be adopted. An attempt may be made to keep the stones "latent," to hedge the patient round, that is to say, with manifold restrictions, so that the outbreak of symptoms is checked. There is, of course, no possibility of dissolving the stones—that we all admit—the only question is as to whether they can be "kept quiet." To ensure this the patient's diet must be narrowly restricted; all foods which, in this particular instance, have proved noxious must be withheld; constipation must be prevented, and chills, over-work and worry and the troubled life avoided. The administration of Carlsbad salts and the periodic repetition of a visit to Carlsbad are helpful. So the calculi may be in some measure prevented from declaring their presence. But is no harm being done? Yes, in spite of the temporary and complete abeyance of symptoms, irreparable harm may all the while be breeding, and harm, unfortunately, that until an advanced stage gives little token of its incidence. And "as well the fear of harm, as harm apparent, in my opinion, ought to be prevented." The injuries that come in the later phases of calculous diseases of the gall-bladder are due to

the migration of stones, and their impaction in the ducts, to the acute infections which are suddenly set going, and to the insidious development of malignant disease. The risk of one or other of these things developing is not small, and though clinical manifestations may be trivial, pathological changes, which are quietly and unobtrusively developing, may be of the most serious character. I hold, therefore, firmly to the belief that as soon as a diagnosis of cholelithiasis has been made an operation for the removal of the stones should be undertaken unless there is a positive indication to the contrary. If an operation is undertaken early, it is simple, safe, and followed by the quick and easy recovery of the patient. If it is long delayed it is of a more formidable character, its risks are greater, its results not so satisfactory. In an early case cholecystostomy is enough; in the later stages cholecystectomy, or choledochotomy, or the opening of the duodenum to release a stone impacted in the ampulla of Vater, may be needed. That is, therefore, the choice before your patient. Early and safe operation followed by a rapid and permanent recovery on the one hand; on the other, uncertainty as the frequency or severity of attacks of colic, the fear of graver changes taking place, and a complicated operation, with a necessarily higher death-rate and a more tardy recovery. Is there any doubt as to which is the more prudent?

So far as these two forms of dyspepsia are concerned, the veracity of the descriptions I have given and their dependence upon the two organic lesions I have named is now, I believe, generally recognised. Of the third so little has been written that it will probably need time and much labour to establish the truth that of all forms of dyspepsia due to morbid changes affecting the viscera within the abdomen, that in which the appendix is the offending member is probably the most frequent. As a cause of inveterate dyspepsia the appendix is, I believe we shall learn, more frequently involved than the gall-bladder and almost as often as the stomach and duodenum together.

My attention was first drawn to this question of "appendix

dyspepsia " eight or nine years ago in connection with the treatment of acute appendicitis in children. When the history of these cases came to be strictly examined it was found very often that the acute and gravely urgent attack was not an entirely new experience in the child's life ; it was merely an exaggeration, though a very formidable exaggeration, of something very similar which had gone before. These earlier evanescent illnesses had been called " bilious attacks." It was found, without exception, that after the appendix was removed these troublesome " bilious attacks " were forever banished. And so, little by little, led by one example after another, I became convinced of the fact that the bilious attacks of childhood, in which pain, vomiting, headache, constipation, and slight fever are present, are surely to be ascribed to mild attacks of inflammation in the appendix. At this time also, when the surgery of the stomach was offering large opportunities for the investigation of the abdominal viscera, I became impressed by two truths—one, that in cases of gastric or duodenal ulcer a lesion apparently of a greater age was not seldom to be found in the appendix ; the other, that in certain cases where an apparently well-founded diagnosis of gastric ulcer had been made after critical investigation of the history, the stomach contents, and so forth, no lesion in the stomach or duodenum was perceptible, but a very definite lesion was discovered in the appendix. A study of these latter cases after operation led to the firm conviction that the clinical history of cases of " gastric ulcer " must be reconsidered. For there was not, and there is not, any possible doubt of the fact that a large number of the cases of " gastric ulcer " are in truth cases of appendicitis. This statement, though literally accurate, will bear this expansion and comment. In the cases of which I speak the lesion in the appendix is an obvious one, it has been present for some time, it is associated with changes in the walls of the tube which indicate serious and advanced inflammatory changes. It is possible that these lesions are primary, and that they give rise to secondary disturbances, the chief stress of which falls upon the stomach. The gastric erosions, from

which blood is sometimes poured forth abundantly, may be due to changes in the wall of the stomach directly brought about by an infection in the appendix. It is possible that in many cases these tiny lesions may be the starting point of a process of ulceration. And it may be that in a notable proportion of cases the ulcer of the stomach or of the duodenum, with which we now deal surgically, is only the last stage in a series of changes which have been set going by an insidious process of inflammation in the appendix. Those at least who have gathered and sifted the evidence will agree that if the appendix be examined as a routine part of the operations upon the stomach, duodenum, or gall-bladder, the frequency with which it is found to be grossly diseased is not less than 30 or 40 per cent. of the cases. The appendix is, therefore, not only responsible for a large number of cases of dyspepsia in so far as its own inflammatory states are concerned, but it is probably also a frequent determining cause of the origin of more serious troubles in parts elsewhere. What are then the symptoms of the dyspepsia due to chronic appendicitis? The chief of them, of course, is pain, or in many cases a continuing wearying discomfort rather than an acute pain. This feeling comes always after food, and is attributed to the meal which has been taken; it is spoken of as "indigestion." It is almost always confined to the epigastrium, or is worse there if radiation to one or other side of the lower part of the abdomen is felt. Pressure in the right iliac fossa will often cause the same sensation of pain or discomfort in the epigastrium as follows, usually upon the taking of a meal. The time of the onset after food is very variable; it may be a few moments, it may be one hour or two, or even more. Some articles of diet produce more severe and earlier discomfort than others; in some patients red meat is not to be taken without disaster; in others starchy foods are banished from the table. A friend of mine, a medical man, whose appendix I removed for inveterate dyspepsia, told me that he could almost indicate the percentage of starch present in any food by the discomfort which it produced; if a large quantity were present he pro-

duced "wind enough to drive a wind-mill." Flatulence, fulness, and acid sour belchings are common, and a feeling of intestinal unrest may not seldom be present. Vomiting is often seen, indeed it is, I think, the most troublesome symptom, though it is the one conspicuous means by which relief from pain and over-fulness is obtained. In not a few cases hæmatemesis or melæna may be present, and may even be profuse.

Nothing, I think, in my original paper on "Appendix Dyspepsia" excited so much wonderment or disbelief as the statement that in these cases hæmorrhage from the stomach might be present. Yet there is no smallest doubt about it. I have seen the vomited matters myself in at least half a dozen cases, and I have no hesitation in saying that many of those who received my former statement with sceptical hostility must have had under their care cases of acute or chronic appendicitis in which bleeding has occurred, for it is not excessively rare. The vomiting comes sometimes within a few minutes or half an hour of the meal, and almost unaltered food may be returned.

The symptoms which I have so briefly outlined you will see are not dissimilar from those to which a diagnosis of "gastric ulcer" would be attached by many physicians. There are, however, certain points of sharp distinction as well as of close resemblance. In cases of chronic duodenal ulcer, and to a lesser degree of gastric ulcer, for example, there are very remarkable periods of remission; in these the patients suffer little or not at all in the intervals between severe and disabling attacks; in "appendix dyspepsia" even brief intervals of repose are rare. As a rule symptoms are present with little or no remission for years, though from time to time there may be an exacerbation, in which discomfort develops into pain, even of a very acute character. In cases of duodenal or gastric ulcer, relief from the symptoms will often follow a brief rest from work and its attendant anxieties; a week-end by the sea in summer will be followed by a period of relief; in cases of "appendix dyspepsia" there is little alteration in the warmer months of the year, and exercise almost without exception makes the pain worse.

In putting very briefly before you my views on these forms of "dyspepsia," I have dealt only with some of those which are now to be recognised without much difficulty. One belief I hold in connection with the surgery of these various conditions, and of others having their origin in the abdomen, is that these lesions do not usually stand alone. It has been too much the custom in dealing with, let me say, a gastric ulcer to be content with the excision of that ulcer or the performance of gastroenterostomy in accordance with the needs of the case, without further investigation being considered necessary. When, however, a search elsewhere is made disclosures of great interest may be brought to light. In gastric or duodenal diseases the appendix is frequently found to be diseased, and, so far as appearances go, we seem to be warranted in saying that the appendix lesion is the more ancient. In cases of gall-stones disease also, as Ochsner has shown, there is found to be evidence of chronic appendicitis in approximately one-third of the cases that are dealt with by operation. The view is by degrees becoming clearer in my own mind that there is an inter-dependence of these various disorders of a much closer character than we have formerly thought possible. And the question will have soon to be answered as to whether some of the unsatisfactory results which have followed an operation that seemed to promise well are due, not to any defect in the diagnosis of the condition, nor in the method of operation adopted, but to a defect in its scope. For example, in the case of gastric ulcer it seems not very unlikely that such ulcer may have its far origin in a toxic condition, which is itself the result of an infection in the appendix.* If gastro-enterostomy be performed and the appendix remains, the peptic jejunal ulcer, which (happily very rarely) may later develop, may owe some part of its origin to the persisting infection (and the consequent toxæmia) in the vermiform appendix. This, at least, I feel

* The appendix here and elsewhere is cited not because it is the only, but because it seems to be the chief of the structures which are liable to an infection in the alimentary canal. In four cases of what I thought to be "appendix dyspepsia," for example, I have found tuberculous ulceration of the lower ileum.

now entitled to say, that for therapeutic purposes it is not wise to ignore the fact that the lesions of which I have been speaking are not always solitary. Remembrance should always be given to the need for investigation of parts other than those with which our operation is immediately concerned.

ART. II.—*Our Responsibilities in the Prevention of Inherited Syphilis; with Illustrative Cases.*^a By
SPENCER SHEILL, F.R.C.P.I.

I SUBMIT the notes of two cases, the character of which is indicated by the title of my paper, and which illustrate in a peculiarly forcible manner, not only the risks which the unborn child may run, but also the pitfalls that beset the path of the anxious practitioner.

The first case is that of a lady who consulted me in the month of April, 1907: she was then about eight weeks pregnant, and desired me to produce an abortion for her. Her principal reason for making this request was that she had contracted syphilis some three years previously, and before her marriage, and she was sufficiently well informed to fear the risks of bringing into the world a tainted infant. She had been under medical care on and off since contracting the disease—a throat specialist amongst others—who prescribed for her a suitable preparation of mercury, and advised its continuance for a long period. She confessed to me that she had not persevered with the drug once the secondary symptoms had disappeared. I warned her of the possibility of spontaneous abortion or of an infected infant, and urged her to take her medicine regularly throughout her pregnancy. I ordered tablets of hydrarg. c. cretâ and opium, and directed the dosage to be pushed to the limit of safety.

This she did to the best of her ability, and I delivered her of a vigorous female infant. Although many authors describe infants—the subjects of congenital syphilis—as

^a A Paper read before the Section of Obstetrics in the Royal Academy of Medicine in Ireland on Friday, April 1, 1910.

being invariably wizened and "old mannish" in appearance, I am of the opinion that this is by no means usually the case. In the present instances, the infants were—as I believe is the rule and not the exception—particularly healthy in appearance when born. In hospital practice some years ago, this was quite a common experience with me.

To resume. On the third day this child developed the usual "snuffles or nasal coryza": its skin became harsh and dry and of a peculiar dark-earthy colour: the typical coppery rash appeared and rapidly spread all over the head, trunk and limbs. The child lived just two weeks in spite of all treatment the emaciation was rapidly progressive. The well known wizened appearance developed a week before it died: it took but little nourishment and cried feebly. The buttocks were ulcerated deeply and extensively, and the disease was so fulminating in its nature that inunction and other administration of mercury proved useless.

Now, in this case we have a mother who, having contracted lues some four years previously, and having in a half-hearted way during three years undergone a course of mercury, and then becoming pregnant, having taken a vigorous course of the drug for seven months, brought forth not only a tainted child, but one with enlarged liver and spleen, and so saturated with the virus as to sink in the way I have endeavoured to describe.

Disappointed, but not surprised, at this result—for I feared the ovum would be syphilitic when conception took place—I advised a long course of mercury under supervision, and the avoidance of a second pregnancy for *at least* one year, and, preferably, two or three. This advice the patient took in December, 1907, and she never missed a dose of medicine in the year 1908 (I should say that she refused treatment by intra-muscular injections of mercury). Early in 1909 she again became pregnant, and, taking the medicine without intermission, except for a few days when stomatitis had appeared, gave birth to a

fine son towards the end of the year. The child appeared a perfect specimen, but the spirochætes in his system were even more perfect, and multiplied at his expense. The poison was not nearly so virulent as in the case of the first-born, and under suitable and vigorous treatment was soon overcome. But, nevertheless, the child was luetic, and although at the present time he is strong and healthy, yet he labours under a huge disadvantage and runs the risk of further secondary or tertiary symptoms later in life. This case then shows that a syphilitic woman, after two years and four months of vigorous and continuous anti-syphilitic medication, could give birth at the end of that time to a diseased offspring.

The other patient has a somewhat different, but not less tragic, history. She contracted syphilis about ten years ago through an unfortunate accident, the site of inoculation being the mouth. She was under specific treatment for about two years, and according to her medical advisers, marriage was then considered safe. She came under my care for the first time last spring, and her history was as follows:—Nine pregnancies, out of which two were abortions, two miscarriages at four to four and a half months, three at about five months, and two premature infants at about seven months—one dead-born and the other so feeble that it survived but a few minutes. Examination of the two fœtuses by an expert pathologist was negative. There was no demonstrable abnormality to account for their loss; therefore the patient was pronounced free from syphilitic taint in spite of her past history. The confidence which the patient had in the opinion of her several medical advisers led her to conceal from me all knowledge of the infection, and of any special pathologist's opinion as to the cause of fœtal death; yet her faith did not prevent her from consulting me with regard to her tenth pregnancy. Suspecting lues, I interrogated her husband, with negative result. The patient was now about four months pregnant, was very thin and anæmic, her feet and hands swelled

at times, and she was rather short of breath on exertion. The urine was normal in every respect, as also were her heart and lungs, &c.

I should mention that she had undergone two curetages for alleged endometritis. Being lured from the right track by her present symptoms, which appeared sufficient to account for the interrupted pregnancies, and by the absence of venereal history from her husband, I prescribed treatment with a view to enriching the blood, &c., and iron, potassium chlorate, malt, &c., were taken freely. The effects of the drugs were soon noticeable, and steady improvement followed. For the first time she carried to term, and in due course I delivered her of a fine, fat male infant. The child progressed well, and steadily gained in weight, but was unduly cross and irritable without apparent reason.

When four weeks old, the bowels became rather persistently loose, and the nates showed decided scalding. The usual ointment, &c., was prescribed without benefit, and within a week the scalding gave place to deep and extensive ulceration—unmistakably syphilitic—and nasal coryza also appeared. This time I gave a definite diagnosis to the anxious father, and a confession of the previous history from the mother resulted.

Under anti-syphilitic treatment this child did well; the healing of the buttocks was slow until vapourised calomel was used by Kane's lamp, when the ulcers healed rapidly. It is now doing excellently well, yet although it will undergo a course of treatment designed to remove from its system all traces of hereditary taint, who can definitely say that, sooner or later, some secondary or tertiary symptom may not make itself apparent?

I regret that these two cases which I bring to your notice are by no means rare; I regret it for the sake of the parents and infants, and even for the generation to follow, as well as for my own natural desire only to occupy your time when I have something unusual to bring before you. My excuse to you, then, must be the

very reverse; the actual commonness of such cases and their regrettable sadness.

In the diagnosis of congenital syphilis the way is quite easy to any one of experience. Although it is sometimes closely simulated in young children by tuberculosis, yet the family history, the history of miscarriages or stillbirths, in conjunction with other signs and symptoms, will usually clear up any existing doubt. But there, again, we may easily fall into error, as, although Case No. 1 never had an abortion or any interrupted pregnancy, yet she gave birth to two syphilitic infants. So, even the absence of abortions does not indicate that syphilis is not present, whilst we are all aware that their presence may be due to a dozen other causes.

As in my cases, the wizened appearance is often wanting, until other signs have forcibly brought home to us the painful fact of lues. The so-called "syphilitic wig," described by Hutchinson—long, dark, sleek hair—is utterly unreliable; I have seen only *too* many cases of syphilis and have never come across a typical "wig," although I have frequently seen long and dark hair on infants above suspicion.

"Snuffles," more aptly than politely so-named, is of little value as a diagnostic symptom; it is seldom pronounced before the first one or two weeks after birth, because the rhinitis is not sufficiently advanced, and by that time other more reliable signs have cropped up. An enlarged liver and a palpable spleen are, to my mind, of great importance in the diagnosis.

The rash on the third day, coppery in colour, turning to papules, bullæ, dull wrinkled skin, the body wasting away, a hoarse, weakly cry, feeble suckling, and sub-normal temperature, combined with enlarged liver and spleen, together make up a clinical picture recognisable at a glance.

The intensity of the infection, in many cases, of congenital syphilis, is remarkable, and finds no parallel in the acquired form; but this is not to be wondered at

when one considers that in the former there is no primary stage, unless we assume one to occur during intra-uterine life. The infection is a generalised one when the parent, or parents, were diseased before conception occurred; and it does not appear to alter the case whether the infection took place by way of the germinal elements or, secondarily, by way of the placenta. Holt, in his "Diseases of Children," has stated that "if the parents become infected before the birth of any children, the first-born is almost invariably the one most tainted." This statement is strongly supported by both of my cases. He says also: "If the mother's symptoms are tertiary, the offspring will probably escape infection." This I cannot now confirm or deny, but No. 2 of my cases had no symptoms of any kind whatsoever, for seven or eight years, other than repeated interruptions of her pregnancies. This interruption may be used as a loophole by Holt, if it is interpreted as an "active secondary symptom," for he says further: "If active treatment of the mother has been employed for several months, if the child is born at a period when no active symptoms are present, the offspring will probably escape." This is when the mother alone is infected.

It may be but a coincidence, but, in the last three cases of this kind I have had under my care, it was the wives who were luetic, and questioning the husbands bore no fruit. It will be a warning to me, if not to others of us, privately to interrogate the wife on the subject, if lues is suspected and a denial of venereal taint is made by the husband. Again, the pathologist's report on the examination of a dead-born fœtus cannot be considered as reliable, unless it include a microscopic investigation. I am unable to say whether, in my second case, the pathologist *did* make this examination or not, but I rather think not, as sections of the liver of a syphilitic fœtus invariably show intercellular cirrhosis, or gummata, and spirochaetes are usually early demonstrated when treated by suitable stains. I need not weary you now with

recapitulations. The serious responsibilities, the difficulties and the pitfalls are as obvious as the morals to be drawn therefrom.

As to the treatment, the time usually allowed as safe for marriage or pregnancy, following a systematic course of mercury, does not appear in all cases to be sufficiently long. Two or three years may be quite inadequate, as is only too well shown by the two years and four months' continuous treatment in one of my cases. I know not what period we may advise as being quite safe—not less than three years, I fear, and perhaps even four or more.

It is our duty to the individual, to the future generations, and to the State, to take no risks in these cases; therefore let us err, if at all, on the safe side, and prescribe mercury for a prolonged period, and, in order to encourage and assist its regular administration, to order it in convenient form: for inconvenient medicines often mean missed doses, and this, in its turn, means incomplete medication, and, probably, disappointing results.

As to the treatment of the infected infant, I have seen no ointment or powder so effective in healing cutaneous ulcerations as is the vapour of calomel applied by means of Kane's lamp. Mercury, of course, we give orally, or by inunction as well. But which is the better method? If we give hydrarg. c. cretâ in powder form, how are we to know when it has been pushed to the limit of safety? Infants seldom, or never, indicate it by salivation: and if we give it until diarrhœa sets in, it is carried to excess. Moreover, in some children, diarrhœa is induced by very small doses of mercury. Inunction is a dirty method, and may arouse suspicion in quarters where such is to be carefully avoided; whereas hydrarg. c. cretâ is frequently administered in complaints other than lues.

I have a leaning towards inunction for the first few weeks; and, when the infant is fully under its influence, I continue the treatment with hydrarg. c. cretâ orally, adding sodium bicarb. and pulv. cretæ aromaticus if loose-

ness of the bowels results. Iron and cod-liver oil should also be given if cachexia and anaemia complicate the case.

For how long should we continue this treatment? Some authorities tell us to stop when all symptoms have disappeared, but, lest a relapse should occur, we shall be safer if we continue it in moderate doses for about one year at the least.

For my own guidance I have formulated the following statements:

1. Having excluded every known cause of interrupted pregnancy—including syphilis—then *treat for syphilis*.

2. Do not place much reliance upon the words of parents, or would-be parents. All men are liars. I speak generically, not of sex.

3. Our previous idea of safe limit of time for marriage or conception in a syphilitic was too short—double it.

4. Our pathologists have, in Levaditi's method and the use of the ultra microscope, a certain method of diagnosing the presence or absence of *Treponema pallidum* in the liver or spleen of dead suspected infants, if they would only take the trouble to use it.

ART. III.—*Clinical Reports of the Rotunda Hospital*. By
E. HASTINGS TWEEDY, F.R.C.P.I., Master; B. A. H.
SOLOMONS and J. R. FREELAND, Assistant Masters.

DURING the year 1908-9 there were 2,369 admissions to the maternity wards and 2,045 deliveries, which is 15 less than the previous year.

The hospital has been improved by the installation of electric light, the planing down of the greatly worn floors, the uniform painting with white enamel of the wood-work of all the convalescent wards, and the modernising of the labour wards by rounding off angles, replastering ceilings and walls, and painting with rippoline enamel.

These labour wards are too small for our present require-

ments, and will soon have to be reconstructed. The corridors of the hospital and the nurses' home stand badly in need of painting. This deficiency has been commented on in the Government Board of Inspectors' Report, and it is a matter of no surprise to read this comment, for many of our corridors have not been painted for twenty years.

In previous reports I have referred to special points of obstetrical interest which have attracted our attention. This year I desire to refer to eclampsia, contracted pelvis, and the treatment of premature children.

My cases of eclampsia up to date number 73. This is not only the largest series of cases published by one observer in Ireland, but surpasses the combined number of my two predecessors. It would be of interest to know if the other Dublin maternity hospitals show a like increase. Six of these patients died, a percentage mortality which compares favourably with the results obtained in other clinics (8.22 per cent.).

The close attention given to statistical records of eclampsia make it imperative that a common standard for diagnosis should be established. That this is necessary is evidenced by the fact that some authors classify as eclampsia convulsive seizures unaccompanied by albuminuria, and thus open the way for inaccurate compilation.

The rules we have acted on in classification are as follow :—

(1) All deaths associated with convulsions, occurring after the sixth month of pregnancy, have been considered as due to eclampsia. Before the sixth month the diagnosis rests on the pathological findings. If there is obvious chronic renal disease it should not be classed as a case of eclampsia.

(2) No woman who gives a history of previous fits unconnected with pregnancy or labour should be included, nor has such a case been included in our list.

(3) We have not included any case of convulsions free from albuminuria. This limitation is of the utmost importance, for there are many conditions which simulate eclampsia, such as epilepsy, heat-stroke, &c.

(4) An unconscious pregnant woman, who shows marked toxic symptoms after the sixth month, with albuminuria, is

considered to have eclampsia, whether or not she has had convulsions.

It is possible that some cases of true eclampsia may pass unrecorded, but, on the other hand, if a less stringent definition is accepted, it is absolutely certain that many spurious cases will be included in a statistical table.

A close inspection of former reports will demonstrate the fact, which has been repeatedly noted by other observers, that the incidence of eclampsia is apparently in the nature of an epidemic. Thus we have gone months without a case, and then have had four cases in the house at once. This fact is worthy of more than a passing notice, for it is possible that it may serve as a clue to the recognition of the cause of the disease.

It seems to me that we have five possible explanations to account for its epidemic character :—

(1) The disease is due to a specific micro-organism. This may be dismissed because of its inherent improbability.

(2) Some chance infection by an indifferent organism, such as the influenza bacillus, may determine the onset in a predisposed woman. That eclampsia is the culmination of a high degree of auto-intoxication is now almost universally accepted. I have often thought that certain mild epidemics of influenza or coryza might be its exciting cause in patients predisposed to the attack by toxæmia. The great congestion of the nasal mucous membrane during the attack suggests the disease coryza. I confess, however, that investigations in this direction have led me to no definite results.

(3) Meteorological conditions and seasonal changes affecting a woman with a system saturated with toxins. This is a plausible explanation, but I have never been able to suggest any connection between weather conditions and the actual epidemic. They do not accompany dampness, great heat, great cold, or rapid changes of temperature.

(4) The disease is due to insufficient fluid in the system. In this connection the undoubted fact should be remembered that eclamptics suffer from a thirstiness of the tissues. A great number of pregnant women do not drink sufficient fluid for

their wants. It is amongst this class that the toxæmias of pregnancy will be found. It is possible that this lack of fluid may account for the great prevalence of eclampsia in tropical climates, where the natives have schooled themselves to exist on a minimum of fluid. Here again we have attempted to associate seasonal changes with lessened intake of water, but our investigations have led to negative results.

(5) The disease is due to intestinal disturbances. Our final source of inquiry may possibly lead to more definite results. An extensive experience of the disease has convinced us that intestinal irritation is closely associated with the onset of convulsions. It is rare to see an eclamptic patient with good teeth. A frequent history is that a large meal has been bolted shortly before the attack. In nearly every case efforts to empty the stomach and the bowel have been rewarded by the removal of large quantities of undigested and indigestible material, frequently of a vegetable nature. Thus, potato skins, lumps of apparently raw cabbage, currants and orange pulp have been removed by gastric and rectal lavage. Their removal is usually associated with benefit. Is it not possible that a connection exists between these indigestible masses and the epidemic nature of the disease? Thus, seasons when raw vegetables are likely to constitute the popular articles of diet, or in the early spring, when the old vegetables have become tough and diseased, would be likely periods for epidemics of eclampsia. The raw meats and vegetables so popular in Continental countries, and the almost exclusive vegetable diet of the tropics, could in this way be made accountable for the greater prevalence of eclampsia there as compared to Ireland.

We think we have gradually evolved a better technique in the treatment of these cases. We have not had a death in our last twenty-six cases. We now insist on greater watchfulness throughout the illness, and seldom permit the nurse to take the entire responsibility. If the breathing becomes impeded and marked signs of obstruction appear, the attendants are instructed to rapidly turn the patient on to her chest, making her head hang over the side of the bed. This allows the fluid which is the cause of the obstruction to pour from the

nose and mouth, and free the embarrassed breathing. If necessary this manœuvre is followed by artificial respiration and administration of oxygen. More than one patient has, we think, thus been saved from asphyxia, and one of our recent patients was resuscitated by a night student from what promised to be a fatal attack.

We do not leave as large a quantity of fluid in the stomach as formerly, for we have noticed that it is apt to regurgitate and embarrass the respiration. A full stomach has also a tendency to press on the weakened heart. To avoid such pressure we keep our patients for the most part on the right side, and only occasionally turn them on to the left side.

In respect to contracted pelves, I would like to enter a plea for their estimation in inches rather than in centimetres. Whatever disadvantage the English method has in other respects it certainly lends itself to a very simple and satisfactory division of pelvic contractions. Thus, if we start with $4\frac{1}{4}$ inches as the normal conjugate, we can divide the different contractions into five degrees, the first four separated from each other by half-inch measurements, the fifth degree comprising all pelves with a true conjugate less than $2\frac{1}{4}$ inches. This presupposes that a simple flat pelvis is being dealt with ; in the presence of general contraction the condition must be considered worse by half an inch.

Children of abnormally large size can be delivered through the normal sized pelvis, and this labour is comparable to unaided delivery in a contracted pelvis. Therefore rules of treatment for contracted pelvis should be based on the supposition that a child certainly of normal size has to be delivered. That this supposition is justifiable is evidenced by our last sixty-one cases of contracted pelvis, with a true conjugate of $3\frac{1}{4}$ inches or less. In these cases the children averaged $7\frac{1}{2}$ lbs. in weight.

I desire to state in an emphatic manner that precision in pelvic measurement is a necessity, in carrying out scientific methods of treatment ; that this precision can be obtained only by Skutsch's pelvimeter, the use of which requires considerable practice ; that treatment based on the known size of the pelvis

will yield better results than that obtained by any other single method. Of other methods, the most important is Professor Müller's, which is of immense utility, but not of universal application. It often fails in obese women, or when the child lies in the third or fourth position with the head extended. To carry it out thoroughly an anæsthetic is necessary.

I no longer consider it justifiable in a well-appointed hospital to induce premature labour or to perform prophylactic version as a treatment for contraction without complication.

These women may be allowed to fall into labour and deliver themselves naturally, provided that the narrowing is not greater than the first or second degree. In such cases the application of a tight binder after rupture of the membranes and the persistent employment of Walcher's position are of immense help.

Delivery by forceps or by enlargement of the pelvis should not be delayed when once maternal or infantile symptoms of distress have appeared, and for these a careful and continuous watch should be kept.

Walcher's position may be maintained indefinitely by placing the patient in the cross-bed position, with her hips elevated by raising the legs of the bed on blocks. This enables the patient's legs to hang down without permitting the feet to touch the floor. Two chairs are placed by the side of the bed, and the patient, covered with blankets, is instructed to let her feet rest on them in the intervals between pains. During the uterine contractions the legs hang down. One of our patients was kept in this position from 11 30 a.m. until 8 30 p.m. without undue discomfort.

In contractions of the third degree the patient's powers should not be wasted by a prolonged second stage, for an enlarging operation will nearly always be necessary for delivery.

In the fourth degree of contraction Cæsarean section, intra- or extra-peritoneal, is the operation of necessity, if the child is alive, whilst craniotomy with cleidotomy, if necessary, can be relied upon for delivery if the child is dead.

In the fifth degree, whether the child is dead or alive, it is best extracted by Cæsarean section.

Of the enlarging operations, sub-cutaneous pubiotomy appears to offer most advantages, both in regard to simplicity and freedom from complication. The one case in which I have performed it will appear in the next Annual Report.

I will again refer to extra-peritoneal Cæsarean section.

To sum up, my views on the treatment of contracted pelvis are :—

(1) Induction of premature labour is never advisable.

(2) Perforation is not permissible unless the child is dead.

(3) Turning should never be employed as a treatment for contracted pelvis, but may still be performed for complications of labour, such as prolapse of the cord, when associated with contractions of the first or second degree.

(4) In the greater degrees of contraction time should not be wasted in an endeavour to obtain natural delivery.

(5) On the other hand, in the lesser degrees ample time should be given the woman to enable her to deliver herself, if possible. Eight or ten hours may be necessary for the moulding of the head, and interference should not be considered until there are evidences of foetal or maternal distress. Once foetal symptoms of distress are manifested there should be no delay in delivery. Walcher's position should not be forgotten as an aid to fixation of the head.

(6) High forceps should never be applied until all arrangements are perfected for an operation to enlarge the pelvis. It is, in my opinion, a pity to proceed to the latter expedient until forceps have been tried tentatively. It must be confessed they occasionally accomplish their purpose under the most unexpected circumstances.

Finally, in these, as in all other obstetrical operations, the best results cannot possibly be obtained if rubber gloves are not worn.

The treatment of premature children is, to say the least, disappointing. I have over and over again remarked that these infants do apparently well for about a week. They then become very withered, with a dry, parched skin, and gradually die from asthenia. The change is sudden in its onset, and seems to be closely associated with dryness of the tissues due

to lack of fluid. This is not surprising when we remember the hot atmosphere in which the child is kept, the constant loss of fluid through the skin, lungs, kidneys and bowel, and the extraordinarily deficient means at our disposal to make good this waste. Thus it is often impossible to give such an infant more than a teaspoonful of fluid at a time, and our resources are taxed to the utmost to compensate for the loss. I have tried subcutaneous injections of saline, but the paucity of subcutaneous tissue makes this quite impracticable.

Rectal injections provide the only means whereby a sufficient quantity of fluid may be absorbed. To make this means effective it is necessary to hold the child up by the heels. In this way, and only in this way, can an appreciable amount of fluid be retained. These injections should be very slowly administered, three or four times a day. Success depends on whether the fluid is retained in sufficient amount, and it should not be less than half an ounce.

Of course I do not under-estimate the importance of heat and of colostrum, the latter of which excites the formation of the anti-bodies that are considered necessary for assimilation. Neither do I forget that such children require warmth and nourishment in its most digestible form, such as small quantities of peptonised whey, until the mother's milk is established.

The morbidity shows a further improvement, 3.85 per cent., as compared with 5.30 per cent. by the B. M. A. standard—*i.e.*, a temperature reaching 100° Fahr. on any two occasions between the second and eighth day, by bi-daily taking, the mouth temperature to be recorded, abortion cases to be excluded, and deaths to be included in the morbidity list, regardless of temperature. By our own estimate it is 2.49 per cent., as compared with 3.64 per cent. last year.

Our method of estimating morbidity is as follows:—A patient is considered morbid if her temperature and pulse, taken twice daily, rise above 99° F. and 90 respectively on three consecutive occasions, counting from the beginning of the second day to the time of her discharge, which in normal cases is noon of the eighth day. Abortion cases are included, but deaths without fever are excluded. If the patient's

temperature and pulse are above the lines indicated she is **not** permitted to leave the hospital until they fall to normal for three consecutive takings, and should a patient be kept in the hospital after the eighth day, and then show any morbidity, our statistics will show it. Temperatures are always taken in the mouth.

We have to record four deaths, which is the smallest number that has occurred during any year of my mastership. Of these four, two were due to sepsis, one to shock, and one to pulmonary tuberculosis.

Two Cæsarean sections were performed during the year; the first calls for no comment, the other was the first of three hysterotomies that I have performed up to date. So far as I know it was the first performed in Great Britain. The steps of the operation were as follow :—

A transverse incision from one anterior superior spine to the other, passing about one inch above the pubes, was carried down to and through the sheath of the rectus. The sheath was separated upwards. The muscles were divided from each other vertically in the middle line. The transversalis fascia and peritoneum were incised transversely. The bladder was raised, putting the vesico-uterine fold on the stretch. This was opened transversely, a finger beneath the fold guarding the uterus from injury. The upper edge of this fold was separated upwards from the uterus and stitched to the upper edge of the wound in the parietal peritoneum, shutting off the general peritoneal cavity. This union was carried all the way around the peritoneal edges, but it is not necessary to continue it any further than just beyond the angles of the wound. Interrupted sutures were used to prevent the closing in of the orifice of the opening which a continuous suture causes.

The lower uterine segment and cervix were opened longitudinally in the middle line. The head was extracted with the lower blade of the forceps and one hand. After removal of the placenta the uterus did not contract well, and hæmorrhage was free. The uterine cavity was douched with hot saline, and plugged with iodoform gauze, the end of which was pushed into the vagina. The uterine incision was closed with

interrupted catgut sutures. The free edge of the peritoneum above the bladder was united by interrupted catgut sutures to the edge of the peritoneum, from which it was originally severed. The aponeurosis was closed with continuous silk sutures, and the skin with Michel's clamps.

My case of symphysiotomy was performed under most unfavourable circumstances for foetal distress in a woman with contracted pelvis complicated by a brow presentation. The membranes were ruptured, the liquor amnii drained off, and solid meconium coming away. The os was the size of a shilling. After the patient was anæsthetised considerable delay ensued while the os was being opened with Frommer's dilators. The death of the foetus, though much to be regretted, was not unexpected. The only interest in respect to the operation was its ease of performance and completeness of subsequent recovery. The woman walked from the seventeenth day, and in this respect showed no difference to convalescence after pubiotomy.

L. J., with a conjugate diameter of $9\frac{3}{4}$ cm., delivered herself naturally of twins. The first, weighing 5 lbs., had a large depressed fracture on the right frontal bone. This was quickly and successfully raised by the plan which I introduced in 1904, and have employed on many similar occasions. This method has proved efficient in raising a depression in a child fifteen months old. That it raises both plates without injuring the brain was demonstrated by *post-mortem* on the baby, which was shown to this Section recently.

The sharp point of one blade of a bullet forceps was bored through the bone at the centre of the fracture. The point must be sharp, else the depression is increased. The shank was then turned at right angles to the bone, and the depressed fracture pulled steadily into position.

The case of C. D. raises the question of correct treatment in pregnancy complicated by myoma. These cases are at all times uncertain in their results, but when, as in this case, the tumours grow very rapidly before the child is viable, the uncertainty is intensified. With rest in bed we were able to allow pregnancy to advance to the thirty-fourth week. Then

delivery became imperative, and labour was induced by Krause's method.

The reasons for selecting induction and not Cæsarean section were as follow:—

The tumours were so situated that they did not obstruct delivery. The patient was a primigravida, and one felt that Cæsarean section would probably end in hysterectomy and deprive her of the possibility of further offspring. This conservatism was not warranted by the results. The fœtus lay transversely, the cord prolapsed, and the child died before extraction. The tumours underwent red degeneration, and the patient ran a high temperature for ten days, causing us much anxiety. Subsequent hysterectomy resulted in complete recovery.

We had two cases of spontaneous delivery with brow presentations. One in a primipara requires no special mention. The second case was a primipara, and the baby weighed $6\frac{3}{4}$ lbs. It is remarkable in that the head was born neither flexed nor extended, with the chin posterior. It was simply driven out as a brow, and caused extensive laceration of the perinæum. Such a mechanism in brow presentation is rare.

Having been urged to employ iodoform gauze wrung out in izal as a uterine drain in cases of fever after child-birth, we gave it a very extended trial. We found that it clogged the gauze, did not drain as well as gauze in salt solution or weak carbolic solution, and that it had no compensatory advantages. We have given it up.

We first started to use scopolamin in maternity work in September, 1908, and have used it freely throughout the year.

We have given it to about 100 cases, all primiparæ. There was no maternal mortality, but two children were born dead. Personally we do not think these deaths had any direct connection with the administration of scopolamin. What we particularly want to call attention to is that scopolamin given by the mouth acts as well as when given by hypodermic injection. Cases in which scopolamin has been administered do not require any greater personal supervision than normal

cases, though this supervision is, of course, most desirable when collecting statistics. My assistants purpose dealing with this subject in a special paper.

My assistant, Dr. Freeland, has been anxious to ascertain practically if any better results can be obtained in labour cases by the addition of shaving to our present methods. To demonstrate this he has selected ruptured perinæums requiring repair, and the application of forceps as eminently suited for the comparison, every other one of these cases being shaved. This investigation promises most interesting results, but until a very much larger number of cases is forthcoming it will serve no good purpose to publish them.

Labour was induced eleven times—for a dead child four times, for albuminuria and œdema once, for hydramnios once, for myoma once, and for *ante-partum* hæmorrhage once. There remain three cases in which labour was induced at full term because of foetal death on former occasions from unexplained causes when labour occurred spontaneously. Live children resulted in these cases.

There were thirty-four cases of *post-partum* hæmorrhage during the year. In five cases the pulse rate remained below 100; in nine it was between 100 and 120; in ten it was between 140 and 160; and in six it was over 160. Twenty-two cases occurred before the placenta left. In twelve of these the placenta was expressed directly from the uterus; in the other ten, a portion or all of the placenta was adherent, necessitating manual removal—three times, of pieces of placenta left after expression; seven times, of the whole placenta. Twelve cases occurred after the expression of the placenta, two and a half hours being the longest interval between the end of labour and the occurrence of hæmorrhage. Six of the thirty-four cases followed operative delivery, necessitating an anæsthetic. The treatment was as follows:—Intra-uterine douche followed by a gauze plug, eleven cases; intra-uterine douche, eight cases; repair of cervical tears, two cases. The others were checked by catheterisation, expression of the placenta, massage, manual control, and the administration of ergotin.

For the accurate compilation of these Reports I am indebted to my Assistant Masters, Drs. Solomons and Freeland.

MATERNAL MORTALITY.

B. K., aged thirty-eight, 12-para ; admitted Nov. 17 ; delivered Nov. 18 ; died Dec. Hydramnios ; anencephalus ; rupture of membranes ; sepsis. Admitted Nov. 17, two weeks beyond full term, no foetal heart heard, membranes ruptured, and fifteen pints of liquor amnii withdrawn ; five and a half hours later she delivered herself naturally of a 5½ lb. macerated anencephalic foetus. Temperature remained normal until the seventh evening, from which time it gradually rose until death. She received four intra-uterine douches. The uterus was explored manually, and considerable decidual debris was removed from the placental site. There was a diplococcus in the smear and pure culture. She developed mania a few days before death.

See Pathological Report for *post-mortem* findings.

M. M., aged twenty-four, 1-para ; admitted July 31 ; delivered August 3 ; died August 5, 1909. Pulmonary tuberculosis ; prolapse of cord ; forceps. Admitted in the last stages of phthisis. When she entered the second stage the membranes ruptured, cord prolapsed, and a living child 7 lbs. weight was easily extracted with forceps. She died two and a half days later.

See Pathological Report for *post-mortem* findings.

E. M., aged twenty-one, 2-para ; admitted August 3 ; delivered August 4 ; died August 4, 1909. Miscarriage ; rupture of the uterus ; sepsis. On admission severe abdominal pain ; foetid discharge ; a history of four months' pregnancy. Abdomen very tender. Foetus half way through the os. Foetus removed. In removing placenta, uterus was found ruptured on right side ; the uterine cavity and rent were plugged with iodoform gauze. Patient at this time showed signs of general peritonitis, and died within ten hours.

See Pathological Report for *post-mortem* findings.

M. M., aged nineteen, 1-para ; admitted August 20 ; delivered August 20 ; died August 20. Twins ; labour shock. Admitted in normal labour. Membranes artificially ruptured when they appeared at vulva, and patient immediately collapsed after the discharge of a large amount of liquor amnii. She shortly afterwards delivered herself of twins ; there was very little hemorrhage,

but despite free stimulation the patient never rallied, and died three hours after delivery.

See Pathological Report for *post-mortem* findings.

CASES MENTIONED ABOVE.

A. W., aged twenty-five, 5-para ; admitted April 6 ; delivered April 8 ; discharged April 28, 1909. Classical Cæsarean section. Operation performed before the onset of labour.. No difficulty. Uninterrupted recovery. Child weighed $7\frac{1}{4}$ lbs. Left the hospital alive. All previous children dead born with fractured skulls.

See table of Contracted Pelves.

M. G., aged thirty-five, 1-para ; admitted October 22 ; delivered October 25 ; discharged Nov. 14. Extra-peritoneal Cæsarean section. In labour fourteen and a half hours, with membranes ruptured when operation performed. Child alive ; $5\frac{3}{4}$ lbs. ; about four weeks premature. Uninterrupted recovery.

See table of Contracted Pelves.

M.D., aged twenty-three, 1-para ; admitted July 9 ; delivered July 11 ; discharged August 7. Symphysiotomy ; brow presentation ; internal version. In labour ten hours when operation performed.

For details of case, see body of Report.

M. C., aged twenty, 1-para ; admitted August 24 ; delivered August 25 ; discharged Sept. 2, 1909. Twins ; fractured skull. Normal delivery. Children weighed 5 and $4\frac{3}{4}$ lbs. respectively. True conjugate $9\frac{2}{3}$ cms.

For details, see body of the Report.

C. D., aged thirty-seven, 1-para, admitted Jan. 16 ; delivered Feb. 13 ; discharged March 31. Myoma ; induction of premature labour ; transverse presentation ; prolapse of cord ; version ; subsequent hysterectomy. Thirty-two weeks pregnant, multiple myomata, growing rapidly. Labour induced by Krause's method. Child dead. Transferred to Gynæcological Ward on the twenty-second day. Hysterectomy performed on the twenty-fourth day. Uninterrupted recovery.

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S. E., aged twenty-nine, 1-para ; admitted Sept. 14 ; delivered Sept. 14 ; discharged Sept. 22, 1909. Brow presentation ; spontaneous delivery ; chin posterior. Nine hours in labour. No difficulty. Child alive ; 6 $\frac{3}{4}$ lbs. weight. Circumference of head ; chin to occiput, 14 inches. Extensive laceration of both levators.

This patient was to have returned for internal pelvimetry, but has not done so.

TABLE NO. I.—*Maternity Department.*

—	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Total
Total deliveries -	165	152	137	149	178	171	171	169	182	204	166	129	1,973
Total abortions -	4	1	3	5	5	6	5	11	11	8	9	4	72
Not in labour -	26	24	20	27	32	25	32	41	26	32	19	20	324
Total	195	177	160	181	215	202	208	221	219	244	194	153	2,369

TABLE NO. II.—*Nature and Number of Cases Treated in the Extern Maternity.*

Total number of Labours -	2,200	Haemorrhage—	
Abortions -	230	Accidental -	5
Hydramnios -	11	Unavoidable -	6
Myxoma chorii -	1	Post-partum -	37
Presentations—		Rupture of uterus -	1
Face to pubes -	24	Operations—	
Face -	5	Forceps -	34
Brow -	1	Version -	18
Breech -	75	Manual removal -	19
Transverse -	8	Eclampsia -	1
Twins -	21	Mortality, maternal -	8
Triplets -	1	Infantile Conditions—	
Prolapse of funis -	11	Anencephalus -	2
		Hydrocephalus -	3
		Spina bifida -	1

TABLE No. III.—*External Mortality.*

Name	Age and Para	Date of Delivery.	Cause of Death	Time Ill	REMARKS
S. U.	40 years, XI.	Nov. 9, 1908	<i>Post-partum</i> hæmorrhage	Died almost immediately	Dead when extern assistant arrived
M. N.	— II.	Nov. 27, 1908	Pulmonary embolus	Died 9th day of puerperium; pleurisy for 5 days before death	Got out of bed against orders; collapsed and died
A. M.	44 years, XXV.	Dec. 10, 1908	Acute dilatation of the heart	Died suddenly, 2nd day of puerperium	Patient had chronic endocarditis. Placenta manually removed
M. L.	24 years, I.	Jan. 10, 1909	Septicæmia	41 days	Sapramia first; membranes and placenta complete
A. T.	— IX.	Feb. 7, 1909	<i>Ante-partum</i> hæmorrhage	—	Moribund when friends sent into hospital; dead when extern assistant arrived
E. C.	24 years, II.	May 4, 1909	Shock; <i>post-partum</i> hæmorrhage	3 hours	Adherent placenta; manual removal
C. M.	32 years, V.	June 6, 1909	Pernicious anæmia	Died 5th day of puerperium	Was in labour when seen first; hæmoglobin, 10 per cent.; R.B.C., 350,000
L. M.	31 years, II.	Aug. 8, 1909	Septicæmia	14 days	Lacerated perineum; membranes and placenta complete

TABLE NO. IV.—*Showing Nature and Number of Cases Treated in Intern Maternity.*

Total admissions -	2,369	Mortality—	
“ deliveries -	2,045	Maternal -	4
Primiparæ -	723	Infantile, died in hospital	36
Abortions and miscarriages	72		
Hyperemesis -	1		
Hydramnios -	5		
Myxoma chorii -	2		
		Stillborn—	
Presentations—		Recent -	29
Face to pubes -	20	Macerated -	43
Face -	6	Putrid -	4
Brow -	4		
Breech -	46		
Transverse -	4		
Twins -	29	Infantile conditions—	
Impacted shoulders -	1	Anencephalus -	1
Prolapse of funis -	16	Anencephalus and spina	
		bifida -	1
		Hydrocephalus -	4
Hæmorrhage—		Hydrocephalus and spina	
Accidental -	6	bifida -	1
Unavoidable -	2	Spina bifida -	1
Post-partum -	34	Encephalocele -	1
Laceration of cervix (operative)	7	Encephalocele, talipes,	
		supernumerary fin-	
Lacerated perineum—		gers and toes -	1
Primiparæ -	345	Cephalhæmatoma -	7
Multiparæ -	137	Fractured humerus -	1
Failure of primary union -	18	Fractured clavicle -	3
Atresia of vagina -	1	Ophthalmia -	4
Rupture of uterus -	1	Talipes -	5
Hæmatoma of vulva -	2	Imperforate anus -	2
Adherent placenta -	15	Umbilical hernia (large) -	1
Contracted pelvis -	14	Hare-lip -	2
		Cleft palate -	1
Operations—		Absence of hand -	1
Induction of labour -	11	Depressed fracture of	
Episiotomy for central tear -	3	skull -	1
Cæsarean section -	1	Dislocation of clavicle -	1
Hysterotomy -	1	Fibroma of finger -	1
Symphysiotomy -	1	Genu varum -	1
Perforation after coming		Hæmophilia -	1
head -	1	Hæmatoma of cheek -	1
Forceps -	81	Icterus neonatorum -	2
Version -	17	Melæna -	3
Eclampsia -	7	Nævus -	2
Mania -	4	Rupture of funis -	1
Phlegmasia -	1	Imperforate anus, ab-	
Puerperal ulcer -	5	sence of ext. genitals	1
		Monster with teeth, un-	
Morbidity—		descended testicles,	
B. M. A. estimation -	3.75	five fingers and toes,	
Rotunda estimation -	2.49	hygroma, &c. -	1

TABLE NO. V.—*Accidental Hæmorrhage.*

Name	Age and Para	Variety	Period	Result to Mother	Result to Child	Presentation	Treatment and Remarks
E. H.	48, XIV.	External	Term	Recovery	Dead	Vertex	Plugged and tight binder; removed in 5 hours; good pains; delivered 1½ hours later
W. D.	24, I.	"	8 months	"	Alive	"	Forceps when os fully open.
T. W.	26, I.	"	Term	"	"	"	Membranes ruptured.
G. V.	28, V.	"	"	"	"	"	Plugs and tight binder; removed 6 hours; good pains; delivered 5 hours later.
W. C.	31, XII.	"	"	"	Macerated	"	Plugged and tight binder; removed in 6 hours; almost unaided delivery.
E. S.	33, VIII.	"	"	"	Alive	"	Forceps when os fully open.

TABLE NO. VI.—*Placenta Prævia.*
(Includes Extern Cases).

Name	Age and Para	Variety	Period	Result to Mother	Result to Child	Presentation	Treatment and Remarks
M. J.	42, VIII.	Lateral	7 months	Recovered	A.	Vertex	Spontaneous delivery.
R. S.	23, III.	Central	"	"	D.	"	Bi-polar version.
M. S.	25, V.	Marginal	Term	"	"	Transverse	Bi-polar version.
E. K.	30, IX.	Lateral	8 months	"	A.	Vertex	Bi-polar version.
M. R.	36, X.	Central	7 months	"	D.	"	Bi-polar version.
B. O'R.	33, VII.	Marginal	Term	"	A.	Breech	Foot brought down.
M. B.	38, VIII.	Central	"	"	"	Transverse	Bi-polar version.
M. D.	24, II.	Marginal	"	"	"	Vertex	Internal version.

TABLE No. VII.—*Contracted Pelves.*
All internal measurements made with Skutsch's Pelvimeter.

Name	Age	Para	Pelvic Measurements					Mode of Delivery	Result to Child	Weight of Child	Result to Mother	REMARKS
			C. V.	Trans.	Ext. C.	I. C.	I. S.					
J. N.	30	I.	8	10	17	26	25½	Breech normal	Alive	3½	Alive	Premature, 7 months. Baby died in 2½ hours.
B. G.	19	I.	8	11	17	25	23½	Vertex normal	Alive	7	Alive	
E. D.	22	I.	8	10	18½	26	22	Vertex normal	Alive	5¼	Alive	Head fixed late in labour. Walcher's position. Scopolamin and morphin.
A. N.	25	V.	8	11	18½	27	25	Casarean Section	Alive	7¼	Alive	Previous children dead born. One prolapse cord and fractured skull. Others forceps and fractured skulls.
M.A.K.	22	I.	7½	—	17½	26½	25	Brow, bipolar version, perforation	Dead	9	Alive	Prolapse of cord. After-coming head stuck. Perforated.
E. G.	26	II.	8½	10½	18	26½	24	Internal version	Dead	5½	Alive	Prolapsed cord, stopped pulsating when version started. Membranes ruptured some hours and liquor amni drained away
J. M.	19	I.	8	12	16	28	26	Breech extraction	Alive	7¾	Alive	Prolapse of cord. Breech unfixed. Great difficulty with aftercoming head.
L. B.	35	I.	6	10½	17½	27½	25¼	Version	Dead	5¾	Alive	Head presenting, cord prolapsed.
M. D.	23	I.	8	12¾	19	28	26	Symphysiotomy. Version	Dead	6¼	Alive	Membranes ruptured with onset of labour.
C. K.	23	I.	8	11½	20	26	25	Normal	Alive	8	Alive	
C. S.	33	II.	9	12¼	20½	28	25½	Induction of labour, forceps	Alive	9	Alive	First child normally delivered; dead.
A. T.	25	I.	7	11½	16	27	26	Breech	Dead	5½	Alive	Macerated.
M. S.	24	III.	8½	—	18	26	24	Version	Dead	6¼	Alive	Transverse. Macerated.
M. G.	35	I.	6	—	16	26	25½	Hysterotomy	Alive	5¼	Alive	

TABLE NO. VIII.—*Forceps.*

Indication	No.	Dead Children	REMARKS
Delayed second stage -	63	6	3 macerated ; one twins ; forceps on both.
Delayed second stage. Persistent occipito-posterior.	4	0	
Accidental hæmorrhage	2	0	Macerated.
Eclampsia - - -	1	0	
Mania - - - -	1	1	
Œdema and albuminuria	1	0	
Pendulous abdomen -	1	0	
Phthisis - - -	1	0	
Primary inertia. Fœtal indications.	2	0	
Prolapse of cord -	2	0	1 putrid.
Sepsis - - - -	2	2	
Threatened rupture of uterus.	1	1	5 macerated.
Total - - -	81	10	

SUB-TABLE A.—*Showing No. of Pregnancy.*

I.-para - - - -	65
II.-para - - - -	12
III.-para - - - -	0
IV.-para - - - -	1
V.-para and over - - -	3
Total - - -	81

SUB-TABLE B.—*Showing Ages of Patients.*

17-25 - -	27
26-30 - -	27
31-35 - -	18
36 and over - -	9
Total - -	81

TABLE No. IX. -- *Eclampsia*.

Name	Age and Para	Condition on Admission	Urine	No. of Fits			Treatment	Result to Mother	Result to Child	REMARKS
				Before Labour	During Labour	After Labour				
C. D., admitted Feb. 2, '09	20 years I.	Conscious	Albumen abundant	-	-	6	Morphin; bowel washed out (2); purgatives; infusion under breasts; poultices to loins	Rec.	A	Delivered Feb. 2. First fit 9 hours later
C. M., admitted Feb. 18, '09	23 years II.	Conscious	Albumen abundant	-	-	1	Morphin; stomach washed out; purgatives	Rec.	A	Delivered Feb. 18. Fit 1½ hours later
T. K., admitted June 10, '09	46 years I.	Unconscious	Albumen abundant	8	1	-	Morphin; stomach washed out; bowel washed out; poultices to loins; purgatives	Rec.	D	Delivered June 11
B. L., admitted June 14, '09	34 years I.	Conscious	Albumen abundant	-	-	5	Morphin; bowel washed out (2); purgation	Rec.	A	Delivered June 14. First fit 2 hours after delivery
E. H., admitted June 15, '09	29 years I.	Unconscious	Albumen abundant	8	1	1	Morphin; stomach washed out; bowel washed out; purgatives; poultices to loins; stimulation; oxygen; artificial respiration (3 times)	Rec.	D	Chloral gr. xx. before admission; pulse very poor; cyanosis on admission; three times during day respiration ceased altogether. Delivered June 15
M. N., admitted July 29, '09	40 years II. 1st preg. abortion	Edema of legs; conscious	Albumen abundant	-	1	-	Morphin; bowel washed out; forceps	Rec.	A	Fit during second stage. Delivered June 29
M. McK., admitted Sept. 30, '09	29 years I.	Unconscious	Albumen abundant	4	-	-	Morphin; bowel washed out; poultices to loins; purgatives	Rec.	D	Child macerated. Delivered Oct. 5

TABLE No X.—*Prolapse of Cord.*

Name	Age and Para	Size of Pelvis.	Result to Child	Weight	Result to Mother	Presentation	Treatment	REMARKS
K. M.	35 years—X.	Not measured*	A.	10½	Rec.	Vertex	Replaced; forceps	Delivered 2 hrs. after replacement
C. D.	37 years—I.	Not measured	D.	6¼	Rec.	Trans-verse Breech	Bi-polar version	Afterwards had hysterectomy for myoma
M. K.	30 years—V.	Not measured*	A.	8	Rec.	Breech	Traction	
B. D.	19 years—I.	Not measured	A.	6½	Rec.	Breech	Traction	First of twins
K. T.	30 years—VI.	Not measured*	A.	7½	Rec.	Vertex	None	
M. K.	22 years—I.	7.5 cm. C. V.	D.	9	Rec.	Brow	Bi-polar version; perforation.	Cord prolapsed with os size of a shilling
E. G.	26 years—II.	8½ cm. C. V. 10½ cm. trans.	D.	5½	Rec.	Vertex	Int. version	Membranes ruptured some hours on admission
J. M.	19 years—I.	8 cm. C. V. 12 cm. trans.	A.	7¾	Rec.	Breech	Traction	Dislocation of clavicle
L. B.	35 years—I.	6 cm. C. V. 10¾ trans.	D.	5¾	Rec.	Vertex	Int. version	Membranes ruptured some hours on admission
C. B.	30 years—VII.	Not measured*	A.	5¾	Rec.	Breech	Traction	
M. D.	22 years—I.	Not measured	A.	6½	Rec.	Breech	Traction	
E. K.	27 years I.	Not measured	D.	9	Rec.	Vertex	None	Pulseless; cord prolapsed when membranes ruptured
A. M.	30 years—VI.	Not measured*	A.	8¾	Rec.	Vertex	Int. version	Fractured clavicle
M. M.	34 years—I.	Not measured	A.	7	Died	Vertex	Forceps	Phthisis. See Mortality Table
M. P.	28 years—I.	Not measured	A.	7	Rec.	Vertex	Forceps	
K. R.	23 years—I.	Not measured	A.	8	Rec.	Breech	Traction	

* Five of the cases in primiparae were not measured because of laceration of the perineum.

TABLE No. XI.—*Breach Presentations*

Para	Total	Dead Children	REMARKS						
Primiparae	16	<table><tr><td>Fresh</td><td>1</td></tr><tr><td>Macerated</td><td>2</td></tr><tr><td>Total</td><td>3</td></tr></table>	Fresh	1	Macerated	2	Total	3	Four associated with prolapse of the cord. Two premature, one of which was one of twins. Death during labour was due to primary inertia. Six were one of twins.
Fresh	1								
Macerated	2								
Total	3								
Multiparae	30	<table><tr><td>Fresh</td><td>0</td></tr><tr><td>Macerated</td><td>2</td></tr><tr><td>Total</td><td>2</td></tr></table>	Fresh	0	Macerated	2	Total	2	
Fresh	0								
Macerated	2								
Total	2								
Totals	46	5	4 macerated.						

TABLE No. XII.—*Twins.*

Both males	-	-	-	7
Both females	-	-	-	12
One male and one female	-	-	-	10
Total	-	-	-	29

TABLE No. XIII. A.—*Morbidity.*

[illegible]

TABLE NO. XIII. B.

Rotunda Estimation	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total
Total Cases	169	153	140	154	183	177	176	180	193	212	175	133	2045
Cases Morbid	5	2	3	3	9	4	2	4	4	8	5	2	51
Percentage	2.96	1.31	2.14	1.95	4.92	2.26	1.14	2.22	2.07	3.77	2.86	1.50	2.49
Total number - 51													
Total percentage - 2.49													

TABLE NO. XIII. C.—*Comparison of Morbidities.*

PRIMIPARÆ.

British Medical Association Estimation	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Total
Total Cases -	59	49	50	46	65	62	69	73	72	80	54	44	723
Cases Morbid	2	3	2	1	6	3	3	4	2	4	3	3	36
Percentage -	3.39	6.12	4.00	2.17	9.23	4.84	4.35	5.48	2.78	5.00	5.56	6.82	4.98

Total cases - 36

Percentage - 4.98

MULTIPARÆ.

Total Cases -	106	103	87	103	113	109	102	96	110	124	112	85	1250
Cases Morbid -	3	0	2	3	3	3	2	3	5	7	5	4	40
Percentage -	2.83	0	2.30	2.91	2.65	2.75	1.96	3.13	4.55	5.65	4.46	4.71	3.20

Total cases morbid - 40

Total percentage - 3.20

TABLE NO. XIV.—*Causes of Morbidity other than Uterine.*

Alveolar abscess	...	...	...	1
Bronchitis	...	...	...	1
Constipation	...	...	...	4
Eclampsia	...	...	...	1
Influenza	...	...	...	3
Mastitis	...	...	...	2
Puerperal ulcer	...	...	...	5
Pulmonary tuberculosis	...	...	...	1
Septic thumb	...	...	...	1
Superficial symphysiotomy	...	...	...	1
Suppuration of wound	...	...	...	1
Syphilis	...	...	...	1
White leg	...	...	...	1
Total				23

TABLE NO. XV.—*Operative Cases, showing Morbidity.*

Forceps (both, 4; B.M.A., 4)	.	.	.	.	.	8
Induction of Labour (B.M.A., 2)	.	.	.	.	.	2
Manual removal of placenta (both, 2; B.M.A., 3)	.	.	.	.	.	5
Rupture of membranes for hydramnios (both, 1)	.	.	.	.	.	1
Post-partum hæmorrhage (both, 1)	.	.	.	.	.	1
Symphysiotomy (B.M.A., 1)	.	.	.	.	.	1
Version (B.M.A., 2)	.	.	.	.	.	2
						20

TABLE NO. XV. A.—*Percentage Operative Morbidity, B. M. A. Estimation.*

Forceps	.	.	.	.	9.88 per cent.
Manual Removals	.	.	.	.	33.33 per cent.

TABLE NO. XV. B.—*Rotunda Estimation.*

Forceps	.	.	.	.	4.94 per cent.
Manual Removals	.	.	.	.	13.33 per cent.

TABLE NO. XVI.—*Lacerated Perineum showing Morbidity.*

B.M.A., estimation alone	.	.	.	.	4
Rotunda	.	.	.	.	0
Both estimations	.	.	.	.	8
Total					12

5 of these associated with forceps.

The following Tables are based on those cases morbid by the B. M. A. Estimation :—

TABLE NO. XVII.—*Duration of stay in House of Morbid Cases.*

Under 10 days	.	33, including 3 deaths.
10-19 days	.	34
20-29 days	.	9, including 1 death.
Total		76

TABLE NO. XVIII.—*Duration of Temperature.*

Under 5 days	.	57, including 3 deaths.
5-9 days	.	12
10-19 days	.	7, including 1 death.
Total,		76

TABLE NO. XIX.—*Highest Temperature Recorded.*

100°-100.9°	28, including 3 deaths.
101°-101.9°	25
102°-102.9°	11
103°-103.9°	11
104°-104.9°	1, including 1 death.
	—
Total.	76

TABLE NO. XX.—*Treatment of Morbid Cases.*

No treatment	.	.	21
Vaginal douche only	.	.	3
Uterine douche	.	.	39
Quinine only	.	.	7
Local treatment (suppurations)			6
Total,			76

TABLE XX. A.—*Uterine Douches.*

20 patients	had 1 douche.
9 patients	had 2 douches.
7 patients	had 3 douches.
2 patients	had 4 douches.
1 patient	had 6 douches.
Total.	<hr/> 39

Izal was used to soak gauze drains before insertion instead of 2 per cent. carbolic for from 4-6 months, and then given up. Of these 76 morbid cases 23 had incomplete membranes.

For report of uterine cultures see Pathological Report.

TABLE NO. XXI.—*Maternal Mortality.*

Name and Age	Admitted	Delivered	Died	Cause of Death	REMARKS
B. K., 48 yrs.	1908 Nov. 17	1908 Nov. 18	1908 Dec. 8	Sepsis	Hydramnios; anencephalus. See P. M. report
M. M., 24 yrs.	1909 July 31	1909 Aug. 3	1909 Aug. 5	Pulmonary tuberculosis	
E. M., 21 yrs.	Aug. 3	Aug. 4	Aug. 4	Miscarriage; rupture of uterus; sepsis	Delivered just after midnight; died before midday
M. M., 19 yrs.	Aug. 20	Aug. 20	Aug. 20	Labour shock	

(To be continued.)

MOLLUSCUM CONTAGIOSUM.

In reporting in the *British Journal of Dermatology*, June, 1910, two cases (both in middle-aged ladies) of this comparatively rare disease, especially in adults, Dr. E. Graham Little observes that its incidence seems to vary curiously with locality. With the aid of Dr. Arthur Hall, of Sheffield, Dr. Little finds that the disease occurs in England fairly regularly in Manchester, Newcastle, Liverpool, Birmingham, Bristol; more rarely in Portsmouth and Plymouth; and is practically unknown in Leeds, Sheffield, Hull, Nottingham, Lincoln, Shrewsbury, Oxford and Cambridge. In Scotland, it occurs frequently in Edinburgh, Glasgow and Aberdeen. In Ireland, it occurs frequently in Dublin, less frequently in Belfast. The information from Ireland is as follows:—Dublin (Dr. Wallace Beatty).—"In ten years, from 1887 to 1897, in the Adelaide Hospital, out of 4,505 skin cases I had fifteen of Molluscum contagiosum—i.e., about 0.33 per cent. I have met with five cases outside hospital: two were in teachers whose duties kept them in contact with the lower classes, one a girl from a charity school, one a doctor, and one a medical student suffering from secondary syphilis. It is more common in children than adults." Belfast (Dr. Purdon).—"It is rare. During the last two years I have seen two cases at hospital, both children, and two in private practice. I should say about one case in 1,000 skin cases."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A Text-Book of Medical Jurisprudence and Toxicology. By JOHN GLAISTER, M.D., D.P.H. (Camb.), F.R.S.E.; Professor of Forensic Medicine and Public Health in the University of Glasgow; Ex-President and Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow; Senior Medico-Legal Examiner in Crown Cases for Glasgow and Lanarkshire, &c., &c. With 130 Illustrations. Edinburgh: E. & S. Livingston. 1910. Pp. 784.

IN 1902 the first edition of this work was issued in the form of one volume, in which both the subjects of Forensic Medicine and of Public Health were treated. Owing to the expansion of these subjects it became increasingly difficult to confine them both within the limits of a single volume of reasonable size; hence Professor Glaister has decided in this second edition to publish the two subjects in separate volumes. That on Forensic Medicine is before us, and that on Public Health is in the press.

When we compare this volume with the corresponding section of the first edition we find it has been so much added to and so largely re-written that it, in fact, represents a new work rather than a second edition. It may be taken as a work treating Medical Jurisprudence in a full and exhaustive manner; in fact we find that many subjects are discussed with greater detail than is the case in any other English work with which we are acquainted. For example, in the chapter on Personal Identity the recent subject of anthropometry, including the finger print method, is very exhaustively discussed, in an article that runs to about 17 pages. Again, a very large number of

illustrative cases are introduced, some of them being described at length. This feature will be found very valuable by medical men using the book as a book of reference, as they will be assisted in making up a particular subject by the analogous cases reported by Professor Glaister. Again, the medico-legal aspects of lunacy receive very full consideration.

Altogether we consider Dr. Glaister's work a very valuable book of reference for all those engaged in medico-legal work.

The only poor feature of the book is its illustrations. They are numerous, and are almost all reproductions of photographs, but many of them show very little, and some show nothing at all. In our opinion a good woodcut or diagram is much more desirable than a poor photograph.

Student's Handbook of Operative Surgery. By WILLIAM IRELAND DE C. WHEELER (Mod.), B.A., M.D. (Dubl. Univ.), F.R.C.S.I. Second Edition. London: Baillière, Tindall & Cox. 1910. Cr. 8vo. Pp. xiv + 296.

As the author says in the Preface, the object of this book is to provide the beginner with the general principles and technique of operative surgery. Therefore the criticism that it is a distinctly *post-mortem* operative surgery does not affect the subject.

Only one method of operation is described in each case. Hence the student is not confused by trying to remember what are, say, the different amputations near the ankle joint.

We are not clear that anything is to be gained by the great number of proper names mentioned in connection with instruments and methods of operation. One must remember that every school christens the same instrument by some local name. There are very few of these names that are worth remembering, so any attempt to stop this practice would be a distinct benefit to the student.

Where a name is mentioned, if a reference was given to literature where fuller information could be sought it would be a great advantage to the operating surgeon.

The diagrams, especially those on the collateral circulation, are clear and accurate. The index is very complete.

We must congratulate Mr. Wheeler and the publishers on the general appearance of this useful work, which we are sure will continue in great demand among operating classes.

"Memories." By "A Hospital Nurse." Bristol: John Wright & Sons, Ltd. 1910. Cr. 8vo. Pp. viii + 168.

THIS small book deals with the experiences of a nurse trained first in a private hospital and later in one of the large London hospitals.

The contrast given of the two classes of nursing is anything but favourable to the larger institution. In fact, from the author's point of view, the system of the general hospital could hardly be worse, if those there trained are afterwards to become private nurses. Little attention is given to the wants of each individual patient, the chief object being to get through the ward work and have everything spick and span in as short a time as possible.

This method taxes a nurse's physical strength. The result is said to be that the fittest survive. To quote the author's own words:—

"Survival of the fittest? Wooden souls in iron bodies! No; I withdraw that, 'tis too sweeping. Fittest certainly in that which makes an athlete better than other men." This seems "damning with faint praise."

Most of the book is taken up with personal reminiscences of private nursing, and many of these, apart from their human interest, will teach a nurse—aye and a doctor too—that which should be done and that which should be left undone.

An Index of Symptoms · With Diagnostic Methods. By RALPH WINNINGTON LEFTWICH, M.D. Fourth Edition. London: Smith, Elder & Co. 1910. Pp. 451.

THE appearance of a fourth edition so soon after the first is a clear proof that the "Index of Symptoms" has been found a useful companion. It would indeed be strange if it had

not been recognised as useful as the collation of causes of symptoms is so complete and so clearly arranged that even the best read and most experienced practitioner will often find it suggestive. In the present edition the terms used have been defined, and the separation between subjective and objective symptoms has wisely been omitted. This little volume is now shaped so as to slip easily into the pocket.

Transactions of the American Urological Association. Vol. III.
1909.

THIS volume, containing as it does nearly 500 pages of reading matter and illustrations, devoted entirely to genito-urinary work, is full of interest for both physician and surgeon.

The book shows improvement both in size and in the form in which the contents are presented to the reader: the work consists of papers read at the Eighth Annual Meeting of the American Urological Association, and is nearly double the size of the volume issued in 1908. The full reports of the discussions on the various papers, together with the excellence of the illustrations, greatly add to the value of the book.

The large number of papers communicated has permitted of their being grouped in an effective manner. The section of the transactions dealing with the seminal vesical contains a large amount of original work, and is specially worthy of attention.

The Practice of Surgery. By WALTER GEORGE SPENCER, M.S., M.B. (Lond.), F.R.C.S. Eng., and GEORGE ERNEST GASH, F.R.C.S. Eng. London: J. & A. Churchill. 1910. 8vo. Pp. xvi + 1234.

As Mr. Spencer points out in the Preface, this is the tenth edition of Walsham's Surgery, with up-to-date additions and improvements.

The whole tenor of this work is very conservative, none but well-tryed methods being advocated, though in a text-book which will probably be the foundation of many students' knowledge of surgery we should like to see more emphasis

laid on the unreliability of chemicals as disinfectants. The method recommended for preparing the surgeon's hands by washing with soap and water, and then simply plunging them into 1 in 40 carbolic acid, is a sufficient example.

More references would be a great advantage—for instance, Mr. Handley's method of treating chronic œdema by artificial lymphatics is mentioned, but no description or reference is given.

In the chapter on Osteomyelitis, the method of treating the diffuse acute forms leaves much to be desired. Not enough stress is laid on the fact that the medullary canal is nearly always infected, and the method of plugging the cavity with gauze seems obsolete.

The illustrations are carefully chosen, the radiograms being particularly good.

THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

At a meeting of the College held on May 17, 1910, the following gentlemen were elected Fellows:—Theodore Robert William Armour, M.B., Ch.B., Liverpool; Alexander Campbell, M.D., C.M., St. John's, Newfoundland; Thomas Fergus, M.B., Ch.B., New Zealand; Henry Grattan Johnston, M.D., L.R.C.S.E., Jamaica; James Lochhead, M.D., Edinburgh; James Masson, M.B., Ch.B., Captain, Indian Medical Service; Hugh Smith Reid, M.D., Edinburgh; James Nisbet Turnbull, M.B., Ch.B., Aden; Jal Sorabji Vakil, L.M. and S., Bombay; James Thomas Wellington Wilkin, M.B., Ch.B., Dunedin, New Zealand; Sidney Rawson Wilson, M.B., Ch.B., Manchester; and Thomas Goodall Nasmyth, M.D., D.Sc., Edinburgh. The Bronze Medal and Case of Instruments presented to the College by Colonel William Lorimer Bathgate, in memory of his late father, William McPhune Bathgate, F.R.C.S.E., Lecturer on Materia Medica in the Extra Academical School, was awarded, after the usual competitive written examination in Materia Medica, &c., held for the Session 1909-1910, to Miss Christian D. Maitland, 12 George Square, Edinburgh. The annual award of the Ivison Macadam Memorial Prize in Chemistry, consisting of a Bronze Medal and Case of Instruments, was, after a competitive written examination in Chemistry, held for the Session 1909-1910, made to Miss Janet Park Walton, 7 Brunton Terrace, Edinburgh.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ASTHMA.

By JOHN B. STORY, M.B., Univ. Dubl.; F.R.C.S.I.

THE writings of Dr. Saenger, of Magdeburg, on asthma have received so little attention in this country that it may be worth while to submit a condensed abstract of them to the readers of the DUBLIN JOURNAL OF MEDICAL SCIENCE. The current definition of asthma is "a neurosis characterised by recurrent attacks of dyspnœa" (this may be regarded as a statement of fact) "caused by spasm of the muscular walls of the bronchioles, associated with turgescence of the mucosa" (this is obviously a hypothesis). The cause of the assumed nervous instability is usually considered to be either an hereditary weakness or one acquired from whooping-cough or repeated bronchitis, &c.

On this hypothesis there seem to be but two courses open to us in treating the disease—either to remove the exciting agents of the nervous attacks or to strengthen the nervous system so as to enable it to resist the noxious agents in question.

The first method is that about which one reads in the journals and text-books. Our attention is drawn to the naso-pharynx as the most fertile source of the "reflex" which sets up the "neurosis." Again, we are told that a vaso-motor derangement of the mucosa is the exciting agent, or that the mechanical obstruction is due in the first instance to an inflammatory swelling. The "reflex" has been attributed to the stomach, the uterus, the ovaries, &c.

Treatment.—If we except the procedures based upon the hypothesis of a naso-pharyngeal or a gastric reflex, the treatment is purely symptomatic, and leaves the patient no better able to resist a second attack when the usual conditions recur. Therefore these patients are advised to keep themselves aloof from the

known or supposed exciting causes in their particular cases, to reside in other localities, &c. Of course general hygiene and proper diet is not neglected, and this is the only measure usually advocated to put the patient in a better condition to resist future attacks. I need not mention the quack remedies and popular nostrums which are advertised to "change the constitution, &c."

The following is a very condensed abstract of Dr. Saenger's last paper:—

The chief symptom of an asthmatic attack is breathlessness. Its cause is obviously chiefly acute pulmonary distention, by which the capacity to remove used up air and waste products and obtain fresh air is lessened. The catarrhal condition of the bronchioles adds a mechanical obstruction. The intensity of the breathlessness is greatly aggravated by the lack of sufficient time for the patient to become accustomed to the condition, as can be proved by the complete absence of such breathlessness in advanced phthisis and extreme emphysema, as well as in thoracic tumours and exudations. Besides this a psychical factor comes into action.

The nature and origin of the pulmonary distention is less easy to explain. It is obviously not caused by tonic cramp of the diaphragm. Indeed, pulmonary distention can be induced normally by exaggerated respiratory efforts. Although the expiratory muscular forces are much greater than the inspiratory, we all during violent bodily exertion inspire more forcibly than we expire. The probable reason is that expiration is usually merely passive, and when increased expiration occurs without physical cause for extra respiration, it is due to a voluntary act, such as speaking, singing, &c. Being unused then to increased expiration from physical causes when want of breath occurs, our expiration soon falls below our inspiration, and the result is a gradually increasing distention of the lungs. This point has been established by several observers.

There is no probability that the distention in asthma is caused by forcible expiration with narrowed outlet, as in players of wind instruments, &c. But the principal cause of the acute lung distention in an asthmatic attack must be found in an abnormal narrowing of the bronchioles. This narrowing naturally impedes expiration much more than it does inspiration.

An inflammatory bronchitis cannot be reckoned among the causes producing this narrowing at the start of and during an

asthmatic attack. No anatomical changes are found in the mucosa sufficient to justify the diagnosis of bronchitis, and an inflammatory attack in some cases actually lessens the asthmatic spasms.

The abnormal narrowing of the smaller bronchi must be regarded as the principal cause of the acute lung distention during an asthmatic attack. From what has been stated above it is evident that no other explanation is left for this phenomenon except that it is of nervous origin. The nervous origin may be regarded as certain, but the material bodily occurrences conditioning are purely hypothetical.

Cramp of the muscular walls is not likely, of itself, to produce such extreme and long-continued distention. Further, this does not account for the catarrhal phenomena.

The vaso-motor theory is more attractive. It can account for the swelling, distention, and the rapidity of onset, but it also leaves the catarrh unexplained, unless we assume that vaso-motor paralysis produces not alone swelling, but also increased and altered secretion of the affected mucosa, which is possible. Indeed the catarrh is explicable on the purely nervous hypothesis, as the secretion of glands is increased in quantity by nervous stimuli—*e.g.*, the salivary, lacrimal, and gastric glands, and even altered in quality, as shown by Pawlow in the case of the salivary glands.

Let the "asthma-catarrh" (so called) arise how you please, there can be no doubt but that it, like the stenosis, is purely functional.

Assuming direct nervous origin of "catarrh," the hypothesis of a direct nervous origin will account for the stenosis. Increased activity will induce secondary hyperemic swelling of the mucosa. But against this must be set the cases in which asthma occurs without increased secretion, and, therefore, we should not assume that the stenosis must in all cases arise from the same cause. Our present knowledge does not permit us to dogmatise as to which of the theories is to be accepted. That different bodily actions can be caused by one and the same mental cause is a well-known fact of experience.

It has been stated that asthma is at bottom a nervous disease. Is there anything in common among the various conditions that excite an attack?

An attack may arise from material or from psychical causes.

Most of the former are either characterised by some unpleasant derangement of normal respiratory sensations or by direct hindrance to respiration. These pre-asthmatic disturbances may be of various kinds. Inhalation of dust, cold air, odours, very dry or very moist air, &c.—anything that makes breathing unpleasant. Mechanical hindrances as the horizontal position, gastric distention by gas or solids, bodily exertion, sneezing, coughing, laughing, weeping, and nasal obstruction, sudden fall of barometer, &c.

In other cases the respiratory connection may not be so apparent, but it is always there. For instance, pain, shock, anxiety, surprise may produce in any one the feeling of breathlessness. Therefore, we may conclude that as all the conditions which produce an attack have this in common, that they derange our breathing, their power of causing an attack is most probably due to this respiratory disturbance. We must also conclude that all the causes of asthma, whether bodily or psychical, produce their effects by their influence upon the mind (*seelische Wirkung*). And this mental condition is essentially one in which there is a pathological direction of attention to the apparently serious state of the respiratory organs. Supposing this to occur in a patient formerly subject to severe bronchitis, nervous or functional bronchial catarrh may result. But this "catarrh" is not an attack of asthma. The latter only results when not alone is want of breath experienced, but also when the patient for some reason or other cannot make a sound "objective" critical judgment upon this want of breath. He is in fear of suffocation. The result is sudden and extreme acceleration and forcing of respiration, which, under the conditions as described earlier, produces lung distention and all the other symptoms of an attack. Conditions present at the first attack may induce other attacks, even if they are not actually accompanied by want of breath on the subsequent occasions.

In considering this question it must be remembered that attacks do not always come on suddenly, but very often gradually.

Saenger goes so far as to think it probable that asthma arises even in cases where there is no memory of antecedent bronchitis in the way described, and the objection that the first attack may occur in childhood does not hold. Children have very good memories.

Diseased conditions of the nervous system of various kinds

make the development of asthma more easy. But of themselves they do not cause asthma. The predisposition must be present—that is, the condition resulting from past bronchitis.

As regards the nasal theories. Of course nasal abnormalities can produce shortness of breath and cough, but it is quite an error to assume that they are primary causes of asthma. So far is this from being the case that Dr. Saenger has many patients cured of their asthma, but with marked nasal abnormalities, septal spurs and deflections, and polypi still untreated. Attention to the state of the stomach is more important than to that of the nose.

The influence of emphysema on the course of asthma is not what one would expect *a priori*, for experience shows that the tendency to shortness of breath and the frequency and severity of the attacks bear no constant relation to the emphysema. Saenger reports cases cured of asthma with marked emphysema, and others with severe asthma and no permanent emphysema. The objective want of breath has no fixed and unalterable relation to the subjective, and there is a mechanical as well as a nervous adaptation to the emphysema. This point is demonstrated by some of the cases recorded.

Saenger obtains the nervous adaptation by his method of treatment, which is briefly to accustom the patient gradually to bear higher and higher degrees of voluntarily produced trouble in respiration without breathlessness.

Professional singers and players of wind instruments are singularly free from asthma. The reason is obvious, and bears strongly upon the principles that should govern a correct method of treatment. These persons, by constant practice in enduring hindrances to respiration, acquire the power of enduring a breathless condition that untrained persons could not stand.

In connection with this we must remember that, as previously pointed out, some of the breathlessness in an attack of asthma is purely subjective. It is, in fact, an instance of auto-suggestion. A proof of the subjectivity of the feeling of want of air in an attack of asthma, in part at least, is found in the inefficacy of oxygen inhalation. Of course the psychical or mental factor tends to increase the activity and power of the material factors, as the greater intensity of the respiratory effort aggravates the lung distention, &c.

It is, however, in many cases not alone the greater respiratory effort, but also an alteration in its type, which assists in pro-

ducing an attack. It has been shown by Struebing that even in sound persons violent expiration with open glottis can produce the symptoms of asthma catarrh. In asthmatics the same holds good, and they have, naturally, a tendency to breathe in this fashion in order to get rid of bronchial secretion, and when they experience difficulty in so doing—*i.e.*, getting up secretion—they exhale with all the more vigour, and, therefore, aggravate their condition. As the attack proceeds, however, and control over respiration is lost, the typical asthmatic respiration appears—*viz.*, deep inspiration with shallower expiration. The inspiration is shorter, though much more effective, than the expiration. Its effect, too, is of course increased by its tendency to open the finer bronchi. Expiration can have no such tendency.

Asthma is then a peculiar traumatic neurosis whose character is determined partly by the anatomical and physiological character of the lungs and bronchi and partly by the psychical lesion which causes an abnormal anxiety in the person affected as to the serious condition of his breathing apparatus.

Treatment.—From what has gone before it is plain that mere bodily treatment cannot suffice in asthma. Mental effects certainly follow from mere bodily treatment, but they have been hitherto arrived at more or less accidentally, and are not always beneficial. We can understand how asthma has obtained the undeserved ill repute of an incurable disease. Correct treatment must deal with the mental as well as the bodily conditions, which on the one hand occasion the disease and on the other are produced by it.

Saenger's method is to produce an effect upon the mind by anti-asthmatic exercises during the intervals between attacks, which gradually accustom the patient to relatively considerable respiratory disturbance, and the body has to submit to a definite regulation of the respiration during the progress of an actual attack.

The drugs, &c., hitherto employed merely treat symptoms, lose their effect in time, and obviously produce no permanent improvement. Saenger's mechanical treatment is less pleasant for patient and doctor, but produces permanent results, and gains in efficacy every time it is employed.

The object of the treatment is to help the expiration and make it more effective. This cannot be done by increasing its violence either by the efforts of the patient or of the doctor. Nothing

can do more harm than such an attempt, as has been pointed out above. It narrows the bronchioles, causes emphysema, and induces coughing. What is to be aimed at is not to strengthen but to weaken the expiratory effort, and at the same time to make it even longer than it is already. To obtain this result inspiration must also be weakened, and so far as possible shortened. A fixed *Tempo* is established, and this rhythmic in- and ex-piration combined with lessened effort gives the intrathoracic organs a relative rest, and therefore diminishes their blood supply. The cough becomes less instant too.

In carrying out this method the outlet for the expired air must be narrowed as it is in singing, speaking, whistling, blowing, for, as has been already shown, expiration with unrestricted outlet can of itself induce breathlessness.

Whether expiration takes place with narrowed glottis or narrowed mouth is a matter of individual taste. And what means, clock or other, is employed to regulate the rhythm is unimportant. Saenger's own method is to make the patient count in even time with prolongation of the vowel sounds to a given number, and then inspire only for as long a period as it took to sound one number. The points are (1) both inspiration and expiration must be weakened; (2) expiration must be not stronger, but longer, than inspiration; and (3) the outlet in expiration must be narrowed. The patient should, if possible, inspire nasally with a sort of sniff, and the respiration should be, if possible, diaphragmatic.

It is difficult often to get the patient to carry out this treatment, but there are no bodily hindrances to doing it. The hindrances are purely mental. The patient fears suffocation if less respiratory effort is made. There is no such danger. The subjective feeling of want of air does not correspond at all to the objective.

Success in treating an attack by this method can rarely be obtained without some previous respiratory exercises practised during an interval free from asthma. These exercises are designed to give the patient the power of enduring considerable respiratory disturbances without noteworthy breathlessness (*Luft hunger*).

These exercises consist in singing or counting for as long as possible without inspiring. By practice an asthmatic person can learn to count up to 50, 60, 80, 100 without drawing breath, the rate being three monosyllabic numbers per second, or two

disyllabic. Or keep up the sound of a vowel for 20, 30, 40 seconds, or even a minute. These can be supplemented later by gymnastics, the spirometer, and Saenger's lung-ventilator.

Finally, the patient must practise relieving the air-hunger induced by these exercises without taking deep long-drawn inspirations.

These exercises properly carried out will endow the sufferer with the power of overcoming asthmatic symptoms at any time or in any place without drugs or other artificial assistance.

The above are, in brief, the general principles of a method of treatment calculated to cure asthma. The particular application must be left to the knowledge, skill, and attention of the medical man.

In many cases besides this control of respiration there is required also a regulation of the cough. Violent rasping and all purely voluntary coughing must be abandoned. The patient must be taught that it is not alone useless, but positively injurious. The involuntary cough must also be suppressed, so far as possible, by exercising restraint over it, by holding the breath when the cough is coming for as long as possible, and also at other times, and, of course, taking short and superficial inspirations afterwards. Voluntary deep inspiratory efforts are an abomination. What possible good can they do? At the best the only result of repletion of the lungs with oxygen can be that respiration may cease for a longer or shorter period. The common "asthma gymnastic" so-called is distinctly injurious.

THE BRITISH ANTARCTIC EXPEDITION. 1910.

IN connection with the announcement of the departure of the *Terra Nova* from the West India Docks on the 1st of June it is interesting to note that the entire medical equipment and all photographic chemicals for the expedition were supplied by Messrs. Burroughs, Wellcome & Co., of London.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.

General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF MEDICINE.

President—WALTER G. SMITH, M.D., F.R.C.P.I.

Sectional Secretary—F. C. PURSER, M.D., F.R.C.P.I.

Friday, March 18, 1910.

THE PRESIDENT in the Chair.

Bronzing of Skin.

DR. J. MAGEE FINNY exhibited a case of discoloration of the skin in a boy aged seventeen. It had been first noticed between December and January last. The discoloration was seen very markedly on the neck, trunk, genitals, nipples, and wherever there had been pressure or irritation, such as round the waist. Deep pigmentation had taken place wherever there had been a burn or sore. The knuckles were all very dark; but the face was very little affected. When the boy was admitted to hospital he was filthy in clothes and body. Owing to adverse circumstances he had had to sleep in the stokeholds of steamers at the quays. Dr. Finny therefore thought it might have been the "dirt disease," but on applying a blister the epidermis was quite black when taken away, and was found to contain true pigment. Dark pigment spots were to be seen coming in the patch where the blister had been. The mucous membranes were very little affected, except for a small spot on the lip and two lines on the palate. A number of white marks on the back showed spots which had been torn. The scars, as well as the whole skin, were perfectly soft. The boy was one of a family of seventeen, of whom five were alive. He did not know of what the others had died. His father and mother had both died: one of pneumonia, the other of bronchitis. For some months he had been feeble, probably from want of nourishment. He had no symptoms of vomiting or fainting. He had improved in every way since coming

into hospital, though his appetite was not such as they associated with a boy of his age. The kidneys were sound, and the blood-count showed no great loss of red corpuscles; the hæmoglobin was 60 per cent.

Pigmentation in Pernicious Anæmia.

DR. T. G. MOORHEAD exhibited a young man who had been admitted to hospital in January last with the typical symptoms of pernicious anæmia. His red corpuscles were reduced to 480,000 per cubic mm., and his hæmoglobin to 20 per cent., his index being, therefore, about 2. He had a slightly enlarged spleen. Now the red cells were 4,200,000, and the other symptoms had disappeared. The principal interest of the case was the association of pigmentation with pernicious anæmia, which was rare. The first reported case was as recent as 1907, since when only two other cases had been reported. In the case before them, there were ink-like patches spreading from the lips on each side, principally where the cheek came in contact with the teeth, in addition to a certain amount of pigmentation on the inner aspect of the lips. In two of the cases previously reported, Addison's disease was confirmed at the autopsy. It had been suggested that the use of arsenic might account for the pigmentation, but in the present patient arsenic had been used only for a week prior to patient's admission. He had suffered from malaria in India a year before.

THE PRESIDENT said the condition shown in both cases was an obscure one, about which very little was understood. They did not know the reason for the difference between the white and dark-skinned races of the human family. The only historical landmark which he knew in regard to the diagnosis of the nature of the discoloration was the discovery, in 1846, that the disease now called *tinea versicolor* was associated with a fungus, and was not pigmentation in the ordinary sense of the word. Pigmentation met with in connection with clinical affections fell into five groups:—(1) In connection with the adrenals; but he thought that the diagnosis of Addison's disease was, perhaps, hastily arrived at on the mere ground of pigmentation. (2) In connection with the liver; it had been observed in connection with hypertrophic cirrhosis of the liver. (3) Cases of malaria associated with spleen disease were often markedly pigmented, and in Assam there was a disease called the

black disease. (4) There was pigmentation associated with the uterus and ovaries, though there was no pigmentation associated with the male sexual organs. (5) There were cases of dark pigmentation, such as in the epidemic of beer-poisoning some four years ago. Some cases of diabetes were associated with very dark brown pigmentation. Their knowledge of the subject was, however, very incomplete, and the Section was indebted to Dr. Finny and Dr. Moorhead for exhibiting the cases.

Amyotrophic Lateral Sclerosis.

DR. MATSON exhibited a case of this disease. The case was perfectly typical. The symptoms were first noted in October, 1908.

Glycosuria following Graves's Disease.

DR. WINTER read a short account of a case. This paper is printed at page 331 of Vol. cxxix. of this Journal (May, 1910).

THE PRESIDENT remarked that other communications on cognate subjects had been before them by Dr. Dawson and Dr. Leeper, and it was advisable not to draw any great distinction between Graves's disease and mental disease. Graves's disease was intimately associated with mental disease, and sometimes passed into true insanity.

DR. DRURY said the case was the fourth recorded in Dublin, in addition to one under his own care. The condition had been considered a fairly rare one, but it would appear that it only required attention to be directed to it to show that it was not so uncommon as had been thought.

DR. FINNY said the question as to whether the thyroid and pancreatic secretion depended on one another was a point of considerable interest. The general view of the association of glycosuria and Graves's disease was that it was a very grave complication.

DR. DAWSON said he did not know that the occurrence of glycosuria in mental disease was comparable with its connection with exophthalmic goitre. In his experience the two forms of mental disease in which glycosuria was found were melancholia and chronic dementia, and it had been attributed to part of the general disorder of metabolism that took place in such cases. Glycosuria occasionally followed the administration of thyroid as a drug, and that might possibly be correlated with its occurrence in exophthalmic goitre.

THE PRESIDENT said they must beware of mistaking a coincidence for a true association. Glycosuria and albuminuria were frequently associated, and in true diabetes it was not rare for albuminuria to develop. There were, undoubtedly, a great number of carbohydrates which they could identify, and there were many varieties of proteins which they could not so easily distinguish. The result was that they had a larger book of scientific evidence in regard to the physiological chemistry of the carbohydrates than of the proteins. Still, the two conditions were liable to go together in clinical practice, and, speaking generally, the appearance of sugar in the urine was, undoubtedly, an example of a disorder of a metabolic function which could easily be upset by a great variety of causes. There were three broad groups of relationship between glycosuria and clinical medicine—first, with the nervous system; second, with the three ductless glands, the thyroid, the pituitary body, and the adrenals; third, with the secretory glands; but there was also room for a small margin of cases referable to the kidney.

On some Early Anæsthetists.

DR. KIRKPATRICK gave an account of the pioneers of anæsthesia, and illustrated a very interesting communication by numerous lantern slides.

INTESTINAL ACTION IN THE NEW-BORN.

DR. GEORGE ERIC CAMPBELL PRITCHARD, of London, is quoted as follows in *The Hospital* for June 25, 1910 :—Meconium, owing to its physical qualities, is admirably designed to lubricate the mucous surface of the intestines and to offer a convenient medium of resistance to the peristaltic movements. It is important in stimulating the first efforts of the intestines and founding the persistence of a correct habit. If the mild and gentle stimulus of meconium be replaced by a purgative dose of castor oil, all subsequent reaction will be materially modified. I know of no series of purgative medicines which are responsible for so much constipation as the single dose of castor oil which clears out meconium from the bowel of the new-born infant.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, May 21, 1910.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended May 21, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 19.5 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, May 21, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality:—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns &c.	Week ending				Average Rate for 4 weeks
	April 30	May 7	May 14	May 21			April 30	May 7	May 14	May 21	
22 Town Districts	22.0	20.1	21.3	19.5	20.7	Lisburn	22.7	9.1	9.1	18.2	14.8
Armagh	6.9	13.7	13.7	—	8.6	Londonderry	20.4	18.0	19.2	15.6	18.3
Ballymena	19.2	9.6	4.8	9.6	10.8	Lurgan	8.9	4.4	44.3	8.9	16.6
Belfast	23.1	22.3	22.7	23.6	22.9	Newry	12.6	21.0	21.0	21.0	18.9
Clonmel	25.6	35.9	51.3	20.5	33.3	Newtown-ards	17.2	28.6	22.9	22.9	22.9
Cork	19.9	25.3	18.5	22.6	21.6	Portadown	15.5	25.8	36.2	15.5	23.2
Drogheda	24.5	61.3	4.1	12.3	25.5	Queenstown	19.8	39.6	39.6	6.6	26.4
Dublin (Reg. Area)	23.9	16.7	22.0	15.9	19.6	Sligo	4.8	—	9.6	24.0	9.6
Dundalk	8.0	4.0	8.0	19.9	10.0	Trillick	15.9	26.4	26.4	37.0	26.4
Galway	—	15.5	11.7	38.8	16.5	Waterford	23.4	29.2	11.7	17.5	20.5
Kilkenny	29.5	44.2	39.3	24.6	34.4	Wexford	37.4	9.3	18.7	37.4	25.7
Limerick	19.1	12.3	13.7	10.9	14.0						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, May 21, 1910, were equal to an annual rate of 2.7 per 1,000, the rates varying from 0.0 in sixteen of the districts to 6.4 in Belfast, the 177 deaths from all causes for that district including 4 from whooping-cough and 44 from measles. Of the 33 deaths from all causes registered in Cork one is from scarlet fever and one from enteric fever. Included in the 5 deaths from all causes registered in Dundalk is one from scarlet fever. One death from whooping-cough is included in the 4 deaths from all causes registered in Lisburn, and of the 4 deaths from all causes registered in Newtownards one is from measles.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 402,928, that of the City being 310,298, Rathmines 37,047, Pembroke 28,948, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, May 21, 1910, amounted to 181—105 boys and 76 girls; and the deaths to 131—76 males and 55 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 17.0 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the Area, the rate was 15.9 per 1,000. During the twenty weeks ending with Saturday, May 21, the death-rate averaged 24.1, and was 3.4 below the mean rate for the corresponding portions of the ten years 1900-1909.

The total deaths (amounting to 123) included one death from whooping-cough, one death from scarlet fever, and 5 deaths of children under 5 years of age from diarrhoeal diseases; this figure does not include one death from *gastro-enteritis* at this age-period. In each of the three preceding weeks deaths from scarlet fever had been 0, 0, and one; deaths from diarrhoeal diseases had been one, 2, and one; and deaths from whooping-cough had been

4, one, and one. There were 2 deaths from influenza, which in each of the three preceding weeks had caused 3, one, and 3 deaths, respectively.

The deaths (13) from pneumonia (all forms) included 5 deaths from broncho-pneumonia, 2 from lobar pneumonia, and 6 deaths from *pneumonia* (not defined).

The deaths (24) from all forms of tuberculous disease included 15 from tubercular phthisis (*phthisis*), one from tubercular meningitis, and 8 deaths from other forms of the disease. Deaths from all forms of tuberculous disease in the three preceding weeks had been 37, 25, and 40 respectively.

There were 3 deaths from cancer, malignant disease (undefined).

Four deaths of prematurely born infants were recorded.

Diseases of the heart and blood-vessels caused 20 deaths, diseases of the brain and nervous system accounted for 9 deaths, 4 being of infants under one year of age from *convulsions*, and of 16 deaths from diseases of the respiratory system bronchitis caused 15 deaths.

Of 2 deaths from violence, one was accidental, and one was by suicide.

In six instances the cause of death was "uncertified," there having been no medical attendant during the last illness; these cases include the deaths of 2 infants under one year of age, and the deaths of 3 persons aged 60 years and upwards.

Thirty-seven of the persons whose deaths were registered during the week were under 5 years of age (23 being infants under one year, of whom 11 were under one month old), and 39 were aged 60 years and upwards, including 22 persons aged 70 and upwards, of whom 3 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer

for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended May 21, 1910, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia, origin uncertain ^a	Etiotic or Typhoid Fever	Erysipelas	Eutermal fever	Whooping cough	Cerebro-spinal Fever	Tubercular Phthisis (<i>Milium</i>)	Total
City of Dublin	April 30	-	*	*	9	1	-	6	-	-	4	10	-	*	-	20	50
	May 7	-	*	*	13	-	-	6	-	-	6	11	-	*	-	11	49
	May 14	-	*	*	8	-	-	4	-	2	2	12	-	*	-	21	52
	May 21	-	*	*	17	-	-	2	-	1	9	8	-	*	-	22	65
Rathmines and Rathgar Urban District	April 30	-	*	*	2	-	-	-	-	-	-	-	1	*	*	-	3
	May 7	-	*	*	-	-	-	2	-	-	-	-	-	*	*	-	3
	May 14	-	*	*	3	-	-	1	-	-	-	1	-	*	*	-	5
	May 21	-	*	*	1	-	-	1	-	-	-	1	-	*	*	-	3
Pembroke Urban District	April 30	-	-	-	-	-	-	1	-	-	-	-	-	-	-	*	1
	May 7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*	-
	May 14	-	1	-	1	-	-	-	-	-	-	-	-	3	-	*	5
	May 21	-	-	-	-	-	-	1	-	-	-	-	-	1	-	*	2
Blackrock Urban District	April 30	-	*	*	-	-	-	-	-	-	-	-	-	*	-	-	-
	May 7	-	*	*	1	-	-	-	-	-	-	-	-	*	-	*	1
	May 14	-	*	*	1	-	-	-	-	-	-	-	-	*	-	*	1
	May 21	-	*	*	-	-	-	-	-	-	-	-	-	*	-	*	-
Kingstown Urban District	April 30	-	*	*	-	-	-	-	-	-	-	-	-	*	-	1	1
	May 7	-	*	*	-	-	-	1	-	-	-	-	-	*	-	-	1
	May 14	-	*	*	1	-	-	-	-	-	-	-	-	*	-	-	1
	May 21	-	*	*	1	-	-	-	-	-	-	-	-	*	-	-	1
City of Belfast	April 30	-	*	*	7	-	-	1	-	-	1	4	-	*	*	21	40
	May 7	-	*	*	8	-	-	2	-	1	5	1	-	*	*	22	41
	May 14	-	*	*	8	-	-	9	1	-	1	8	1	*	*	17	45
	May 21	-	*	*	8	-	-	2	-	-	2	4	-	*	*	15	29

^a Continued Fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended May 21, 1910, 3 cases of measles were admitted to hospital, and 10 cases remained under treatment at its close.

Nineteen cases of scarlet fever were admitted to hospital, 4 were

discharged, there was one death, and 84 cases remained under treatment at the close of the week. This number is exclusive of 10 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the three preceding weeks the cases in hospital had been 59, 62, and 70 respectively.

Two cases of typhus were discharged from hospital during the week, and one case remained under treatment at its close.

Twenty cases of diphtheria were admitted to hospital, 6 were discharged, and 46 patients remained under treatment at the close of the week. The cases in hospital at the close of the three preceding weeks had numbered 39, 31, and 32 respectively.

Four cases of enteric fever were admitted to hospital during the week, one was discharged, and 31 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 15 cases of pneumonia were admitted to hospital, 8 were discharged, there was one death, and 48 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, May 21, in 76 large English towns, including London (in which the rate was 11.4), was equal to an average annual death-rate of 12.4 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 15.5 per 1,000, the rate for Glasgow being 15.8, and for Edinburgh 15.9.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended May 21. From this report it appears that of a total of 31 cases notified, 13 were of scarlet fever, 12 of phthisis, 3 of diphtheria, 2 of erysipelas, and one of enteric fever.

Among the 309 cases of infectious diseases in hospital at the close of the week were 148 cases of scarlet fever, 30 of measles, 56 of phthisis, 18 of whooping-cough, 32 of diphtheria, 10 of erysipelas, 8 of chicken-pox, and 4 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of May, 1910.

Mean Height of Barometer, - - -	29.913 inches.
Maximal Height of Barometer (1st, at 9 a.m.),	30.443 „
Minimal Height of Barometer (31st, at 9 a.m.),	29.230 „
Mean Dry-bulb Temperature, - - -	51.5°.
Mean Wet-bulb Temperature, - - -	48.4°.
Mean Dew-point Temperature, - - -	45.2°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.308 inch.
Mean Humidity, - - - -	80.0 per cent.
Highest Temperature in Shade (on 22nd),	69.2°.
Lowest Temperature in Shade (on 9th),	35.0°.
Lowest Temperature on Grass (Radiation) (9th),	31.9°.
Mean Amount of Cloud, - - -	56.7 per cent.
Rainfall (on 21 days), - - -	2.550 inches.
Greatest Daily Rainfall (on 18th),	.368 inch.
General Directions of Wind, - - -	-W., N.W., N.E.

Remarks.

A cool, showery month, with a marked prevalence of winds from polar quarters. During the first fortnight conditions upon the whole were very changeable—showers of rain, hail or sleet, and squalls, often accompanied by thunder and lightning, being reported from most districts. In Dublin the mean temperature of the first week (1st–7th) was 47.1°, or 2.7° below the average; that of the second week (8th–14th) was still lower—46.5°, or 4.6° below the average. An improvement as regards temperature was observed in the third week (15th–21st), the mean rising to 53.8°, or 1.8° above the average. Rain, however, fell freely in that week, the measurement being 1.274 inches at Fitzwilliam Square, Dublin. From the 22nd to the 27th the barometer ranged high, an anticyclone lying over Ireland. The weather was warm and summer-like on the 22nd and 23rd, but a cold northerly air current quickly reduced the temperature, so that on Wednesday, the 25th, the thermometer did not rise above 57° in London, and 52° along the east coast of England. On that same day, however,

a maximum of 71° was reported from Birr Castle, King's County, and the mean temperature of the week ended Saturday, the 28th, was from 3° to 4° above the average all over the United Kingdom. During the closing days of the month a large atmospheric depression spread south-eastwards from Iceland towards the British Isles. This system grew deeper as it travelled, so that on the morning of the 31st the barometer was down to 28.95 inches at Sumburgh Head, in the Shetlands. At the same time a secondary depression advanced to the Irish coasts from the Atlantic, so that the weather became very unsettled, squally and showery in this country. Halley's Comet was seen as an inconspicuous object in the north-western sky on the 22nd and three following nights.

In Dublin the arithmetical mean temperature (51.8°) was 0.4° below the average (52.2°). The mean dry-bulb readings at 9 a.m. and 9 p.m. were 51.5° . In the forty-six years ending with 1910, May was coldest in 1869 (M. T. = 48.2°), and warmest in 1893 (M. T. = 56.7°). In 1909 the M. T. was 52.6° .

The mean height of the barometer was 29.913 inches, or 0.076 inch below the corrected average value for May—namely, 29.989 inches. The mercury rose to 30.443 inches at 9 a.m. of the 1st, and fell to 29.230 inches at 9 a.m. of the 31st. The observed range of atmospheric pressure was, therefore, 1.213 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 51.5° , or 6.4° above the value for April, 1910—45.1°. Using the formula *Mean Temp.* = *Min.* + (*Max.* — *Min.* × .47), the value is also 51.4° , or 0.4° below the average mean temperature for May, calculated in the same way, in the thirty-five years, 1871–1905, inclusive (51.8°). The arithmetical mean of the maximal and minimal readings was 51.8° , compared with a thirty-five years' average of 52.2° . On the 22nd the thermometer in the screen rose to 69.2° —wind, N.N.W.; on the 9th the temperature fell to 35.0° —wind, N.W. The minimum on the grass was 31.9° , also on the 9th.

The rainfall amounted to 2.550 inches, distributed over 21 days. The average rainfall for May in the thirty-five years, 1871–1905, inclusive, was 1.970 inches, and the average number of rain days was 15. The rainfall and rain-days were, therefore, considerably above the average. In 1886 the rainfall in May was very large—5.472 inches on 21 days; in 1869, also, 5.414 inches fell on 19 days. On the other hand, in 1895, only .177 inch was measured on but

3 days. In 1896 the fall was only .190 inch on 7 days. In 1909, 1.470 inches fell on 12 days.

A solar halo appeared on the 4th, 6th, 15th and 19th. A lunar halo was seen on the 20th. High winds were noted on 9 days, but never attained the force of a gale. Hail fell on the 5th, 6th, 7th and 8th. A brief thunderstorm occurred on the 6th. There were fogs on the 15th and 16th.

The mean minimal temperature on the grass was 42.0° , compared with 41.9° in 1909, 45.2° in 1908, 41.6° in 1907, 41.9° in 1906, 42.5° in 1905, 42.6° in 1904, 44.3° in 1903, 40.3° in 1902, 41.7° in 1901, and 37.6° in 1894. The maximum fell short of 50° on 3 days. The absolute maximum was 69.2° on the 22nd.

The rainfall in Dublin during the five months ended May 31st amounted to 12.421 inches on 92 days, compared with 10.098 inches on 75 days in 1909, 10.078 inches on 95 days in 1908, 9.499 inches on 81 days in 1907, 11.592 inches on 97 days in 1906, 9.026 inches on 81 days in 1905, 11.741 inches on 92 days in 1904, 12.560 inches on 95 days in 1903, 9.973 inches on 81 days in 1902, 7.724 inches on 67 days in 1901, 5.971 inches on 70 days in 1896, and a thirty-five years' average of 10.040 inches on 81 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. W. H. Clark, B.A., returns the mean height of the barometer as 29.910 inches, the highest reading observed being 30.440 inches at 9 a.m. of the 1st, the lowest, 29.229 inches at 9 a.m. of the 31st. The arithmetical mean temperature was 51.7° , the mean dry-bulb reading at 9 a.m. and 9 p.m. being 52.0° . Rain fell on 20 days to the amount of 2.473 inches, .364 inch being measured on the 18th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 175.5, giving a daily average of 5.7 hours. The corresponding figures for May, 1904, were 192.5 hours and 6.2 hours; for 1905, 215.7 hours and 7.0 hours; for 1906, 132.5 hours and 4.3 hours; for 1907, 173.0 hours and 5.6 hours; for 1908, 193.9 hours and 6.3 hours, and for 1909, 231.5 hours and 7.5 hours respectively. The mean earth-temperature at 9 a.m. was 51.7° at a depth of one foot below the surface, 49.3° at 4 feet. The corresponding values for 1908 were 53.5° and 50.0° , and for 1909, 52.3° and 50.0° . The lowest temperature on the grass (terrestrial radiation) was 26.1° on the 11th. The highest temperature in the shade was 70.1° on the 22nd; the lowest was 34.9° on the 9th.

Captain Edward Taylor, D.L., returns the rainfall at Ardgillan, Balbriggan, Co. Dublin, as having been 2.21 inches on 19 days; the largest fall in one day was .48 inch on the 15th. Since January 1, 11.68 inches of rain have fallen at that station on 86 days, this measurement being 1.48 inches above the average and the rain-days being 7 in excess. The shade temperature ranged from 32.6° on the 9th to 68.2° on the 22nd, the mean being 56.4° , or 0.4° below the average. Thunder was heard on the 19th and 31st. Hail fell on the 8th and 31st, soft hail on the 6th and 7th.

At Knockdolian, Greystones, Co. Wicklow, the rainfall measured by Mr. R. Cathcart Dobbs, J.P., was 2.110 inches, distributed over 16 days—.400 inch falling on the 18th. The total fall since January 1st, 1910, equals 11.995 inches on 64 days.

Dr. W. Stewart Ross measured 1.70 inches of rain on 14 days at Clonsilla, Greystones, Co. Wicklow. The heaviest fall in 24 hours was .35 inch on the 19th. The mean temperature was 51.2° —highest being 68.2° on the 27th, lowest 36.0° on the 9th. The mean maximum was 57.4° , the mean minimum was 45.0° .

Dr. Arthur S. Goff returns the rainfall at Lynton, Dundrum, Co. Dublin, at 2.67 inches on 20 days. The greatest daily measurement was .30 inch on the 19th. There were hail showers on the 5th, 6th and 7th. The temperature in the shade ranged from 36° on the 9th to 70° on the 20th and 21st. The mean temperature of the month was 52.4° , compared with 53.6° in 1909, 56.2° in 1908, 51.1° in 1907, 51.8° in 1906, 54.5° in 1905, 53.3° in 1904, 53.1° in 1903, 50.5° in 1902, and 52.6° in 1901.

Mrs. Olive F. Symes reports that the rainfall at Druid Lodge, Killiney, Co. Dublin, was 1.98 inches on 14 days, .30 inch being measured on the 17th. The average rainfall in May at Killiney in the 24 years, 1885-1908, inclusive, was 2.136 inches on 13.8 days.

At Cheeverstown Convalescent Home for Little Children of the Poor, Clondalkin, Co. Dublin, Miss C. Violet Kirkpatrick recorded a rainfall of 2.795 inches on 19 days, the maximal falls in 24 hours being .31 inch on the 18th and .30 inch on the 5th.

Dr. Launcelot T. Burra reports that the rainfall at the Royal National Hospital for Consumption, Newcastle, Co. Wicklow, was 1.78 inches on 19 days, the greatest fall in 24 hours being .41 inch on the 18th. The screened thermometers ranged from 67.2° on the 22nd to 36.1° on the 9th. The mean temperature

at 9 a.m. and 9 p.m. was 50.7° --the mean maximum being 57.1° , the mean minimum, 44.2° .

Dr. C. Joynt, F.R.C.P.J., returns the rainfall at 21 Leeson Park, Dublin, at 3.145 inches on 20 days, .620 inch being measured on the 15th.

Mr. T. Bateman returns the rainfall at The Green, Malahide, Co. Dublin, at 1.955 inches on 17 days. The greatest rainfall in 24 hours was .465 inch on the 15th. The extremes of temperature in the shade were--highest, 69° , on the 22nd; lowest, 31° , on the 8th. The mean temperature was 48.9° .

Mr. W. Miller registered 1.65 inches of rain at Cork on 14 days. The greatest fall in 24 hours was .63 inch on the 18th. The rainfall was 0.63 inch in defect of the average for May. The rainfall of the first five months of 1910 was 14.01 inches on 97 days, or 0.94 inch less than the average. The rain-days were, however, 16 over the average.

The Rev. Arthur Wilson, M.A., writing from Dunmanway Rectory, Co. Cork, states that 2.12 inches of rain fell there on 16 days, .36 inch being measured on the 7th. There was drought from the 20th to the 29th. Thunder and lightning occurred on the 13th and 17th.

Mr. W. Holbrow measured 2.89 inches of rain on 16 days at Derreen, Kenmare, Co. Kerry. The heaviest daily falls were .41 inch on the 13th and .39 inch on the 18th. Hail fell on the 6th, 7th, 8th and 9th. Thunder was heard on the 13th, 17th and 18th. The weather was very fine and warm from the 18th to the 30th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 20 days to the amount of 2.459 inches, the greatest measurement in 24 hours being .450 inch on the 18th. The total amount of bright sunshine was 198.2 hours, of which 14.0 hours occurred on the 11th and 23rd, the brightest days of the month.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

" Wellcome " Brand Influenza Vaccine.

This vaccine is for use in cases of influenza in which the presence of the *Bacillus Influenza* has been demonstrated. An initial dose may be given of ten million organisms, to be increased according to the indications of the case. " Wellcome " Brand Influenza Vaccine is issued in hermetically sealed phials as follows :—

- (a) 1 c.c. containing 10 million *Bacillus Influenza*.
- (b) 1 c.c. ,, 50 million *Bacillus Influenza*.

" Wellcome " Brand Coryza Vaccine.

CORYZA or catarrh may be caused by a variety of micro-organisms occurring singly or combined. Amongst those most frequently present are the *Bacillus Septus* (*Bacillus Coryza Segmentosus*) and the *Micrococcus Catarrhalis*. Three Coryza Vaccines are issued for use according to the nature of the infection. The initial dose is 100 million organisms of one or both varieties. " Wellcome " Brand Coryza Vaccine is issued in hermetically sealed phials as follows :—

- No. 1.—1 c.c. containing 100 million *Bacillus Septus*.
- No. 2.—1 c.c. ,, 100 million *Micrococcus Catarrhalis*.
- No. 3.—1 c.c. ,, 100 million *Bacillus Septus* and
100 million *M. Catarrhalis*.

PERISCOPE.

TUBERCULOSIS MORTALITY IN IRELAND.

Deaths from all forms of tuberculosis disease (1907) 11,679

Deaths from all forms of tuberculosis disease (1908) 11,293

Decrease, ——— 386

Deaths from all forms of tuberculosis disease (1908) 11,293

Deaths from all forms of tuberculosis disease (1909) 10,591

Decrease, ——— 699

Total decrease for two years. 1,085

1907—Death-rate per 1,000 of estimated population from all
forms of tuberculosis disease - - - 2.7

1908—Death-rate per 1,000 of estimated population from all
forms of tuberculosis disease - - - 2.6

1909—Death-rate per 1,000 of estimated population from all
forms of tuberculosis disease - - - 2.4

The diagram shows the death-rate from tuberculosis in Ireland during ten years, 1900-1909:—

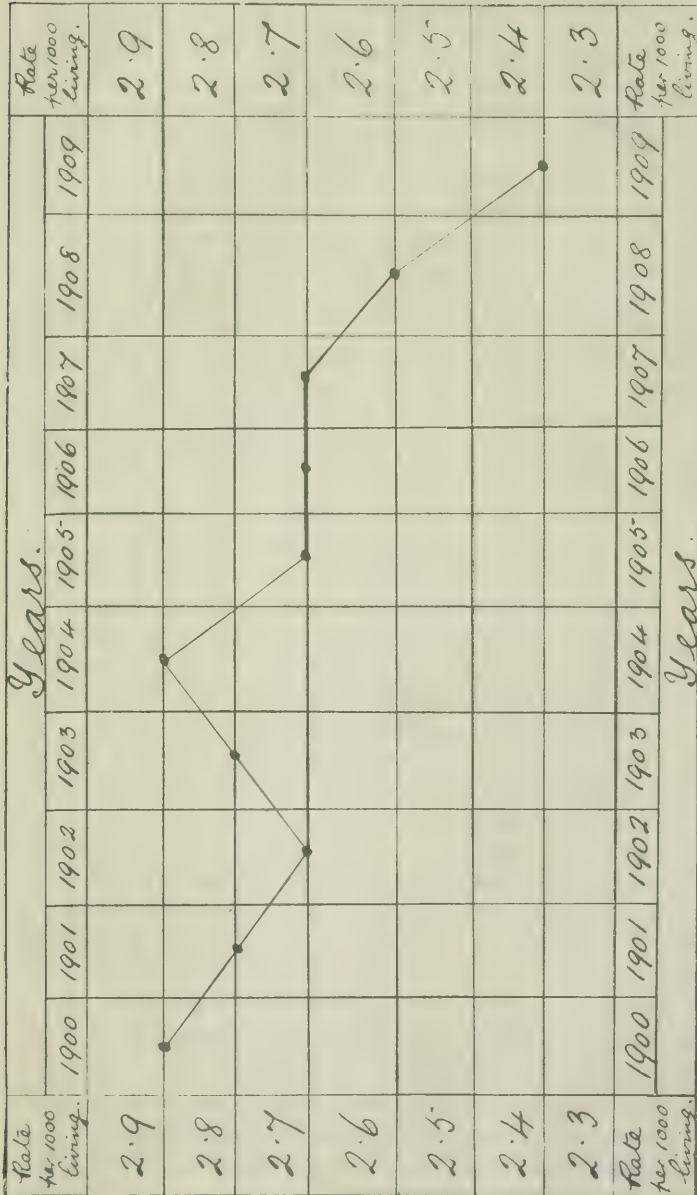


Diagram reproduced (in part) from the Report of the Registrar-General for Ireland by permission of the Controller of His Majesty's Stationery Office.

THE DUBLIN HOSPITALS' TUBERCULOSIS COMMITTEE.

A QUARTERLY meeting of the Hospitals' Tuberculosis Committee was held on Friday, June 17th, 1910, at 76 Grafton Street, at 5 15 p.m. Present :—Sir John Moore, M.D. (in the chair) ; Her Excellency The Countess of Aberdeen, Doctors Cox, O'Carroll, Drury, Parsons, Garland, Kirkpatrick, Dunne, Peacocke, and the Hon. Secretary, Sir William J. Thompson. Apologies for non-attendance were received from Sir Arthur Chance and Dr. Lumsden. The minutes of the previous meeting were read, confirmed and signed. The hon. secretary read the following satisfactory report from the Inspector of the Queen Victoria Jubilee Institute for Nurses :—“ The work of the two Special Tuberculosis Nurses, supported by the Women's National Health Association, continues to be carried on most successfully, and it is very encouraging to note the amount of improvement in patients even under the most unfavourable conditions. The books and equipment are in good order.” The usual Reports were then considered as follow :—

1. Dr. Daniel's report for three months :—

“ June 6, 1910.

“ In presenting my report for the three months ended 21st May, 1910, I beg to say that I paid 40 visits to patients' homes, and during the same period 35 visits were made to me by patients—total, 75. Of this number I was able to get 6 patients admitted to the Hospice, Harold's Cross, and in each case the bedroom occupied by the patient was disinfected.

“ I examined 11 cases for admission to the Holiday Home, Sutton ; 9 were passed as suitable ; 2 were rejected, there being evidence of tuberculosis.

“ Amongst the patients that came under my care during the quarter there were no deaths at their homes. In the great majority of cases both the patients and their families were very badly off, especially in those cases where the breadwinner was affected.

“ JOS. T. DANIEL.”

2. Summary of report of work done by two Tuberculosis District Nurses in Dublin for three months, ended May 21, 1910 :—

No. of cases attended (135 old cases, new cases 62) - 197

Of these 15 died ; the remainder are under treatment or have been dealt with as follows :—

“ visits paid	-	-	-	-	-	-	1,755
“ average weekly attendances	-	-	-	-	-	-	135

No. of cases notified from hospital	-	-	-	16
„ „ otherwise	-	-	-	46
„ „ improved so much that they were able to return to work again	-	-	-	11
„ „ sent to the Royal National Hospital, Newcastle, Co. Wicklow	-	-	-	3
„ „ waiting to be admitted to Newcastle Hospital	-	-	-	—
„ „ sent to other sanatoriums	-	-	-	3
„ „ gone or sent to friends in the country	-	-	-	8
„ „ sent to South Dublin Union for special tuberculosis treatment	-	-	-	4
„ „ admitted to North Dublin Union Hospital	-	-	-	5
„ „ admitted to South Dublin Union Hospital	-	-	-	4
„ „ admitted to the Hospices for the Dying	-	-	-	14
„ „ attended who have been at Newcastle Hospital	-	-	-	11
„ deaths at patients' home	-	-	-	5
„ „ in institutions	-	-	-	10
„ families removed to more healthy homes	-	-	-	4
„ rooms disinfected	-	-	-	27
„ insanitary houses reported	-	-	-	6
„ sputum flasks distributed	-	-	-	12
„ families who received nourishment	-	-	-	41
„ patients who received clothes, shoes, bedding, &c.	-	-	-	29
„ families for whom rent is being paid while the breadwinner is at Newcastle or in the Dublin Unions	-	-	-	2
„ children of parents suffering from tuberculosis sent to the country through the Fresh Air Fund	-	-	-	—
„ children boarded out while the mother is in hospital	-	-	-	3
„ patients or their families for whom work has been obtained	-	-	-	5
„ children sent to schools or institutions after parents' death	-	-	-	—
„ each family, rough average	-	-	-	5 to 6
„ families occupying one room	-	-	-	31
„ families in which more than one person are affected	-	-	-	35
„ Average weekly income	-	-	-	14/-
„ Average weekly income when bread winner is ill	-	-	-	3/6

3. Summary of report of work done by District Nurse McWilliam in Terenure, Co. Dublin, amongst tuberculosis cases for three months.

The following resolution was unanimously adopted, and the

lion. secretary was directed to send it to the Public Health Committee and the Cleansing Committee of Dublin Corporation :—

"That this Committee is of opinion that a large proportion of the number of chest affections leading to tubercular disease in the City of Dublin is due to the excessive amount of dust in the streets, the inadequate watering thereof, and the faulty method of sweeping the streets.

"The Committee note with regret that the plague of dust is especially prevalent in the poorer quarters, where little or no attempt is made to lay it by watering and subsequent removal."

The Medical Superintendent Officer of Health for Dublin and the Local Government Medical Inspector for the Dublin District were elected members of the Committee.

Her Excellency laid before the Committee the drawings and proposed plans of the P. F. Collier Dispensary for the Prevention of Consumption, which is to be erected forthwith in Charles Street, Upper Ormond Quay, Dublin.

JAPANESE-BRITISH EXHIBITION.

It is gratifying to note that in the Japanese-British Exhibition an important place is assigned to the leaders of chemical industry. Messrs. Burroughs Wellcome & Co. have a very striking exhibit of the chemicals manufactured by them at their works at Dartford, in Kent. The various "Wellcome" Chemicals exhibited are displayed in vases and amphoræ of ancient Grecian design. These vases are replicas in glass of actual relics of that great old civilisation to which we owe so much, and their association with the latest developments of synthetic and analytic chemistry is quaint and pleasing, while their contents serve to show that much is now being done to win back this department of scientific industry from foreign rivals. Another interesting feature of this exhibit is the series of photographs of scenes from the "Wellcome" Materia Medica Farm at Dartford. This farm was started some six or seven years ago for the culture of medicinal plants, chiefly those which are indigenous to England, and is conducted with a view partly to experiment and research, and partly to obtain supplies for pharmaceutical purposes of fresh herbs of known origin and of uniformly high standard. The results of this scientific herb culture, checked and standardised by chemical analysis and physiological tests, are calculated to bring a new element of exactitude into the somewhat hazy posology of some vegetable substances.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

AUGUST 1, 1910.

PART I.

ORIGINAL COMMUNICATIONS.

ART. IV.—*Pathological Report of the Rotunda Hospital for the year ending 31st October, 1909.*^a By ROBERT J. ROWLETTE, M.D., Pathologist to the Hospital.

I AM glad to report a considerable increase in the work undertaken by the Laboratory of the Rotunda Hospital during the year 1908-9.

Autopsies were performed in the case of eleven adult patients, seven from the gynæcological side and four from the maternity. Brief notes are appended:—

CASE I. (Gynæcological).—B. M., aged thirty-five, died 18th November, 1908. Autopsy same day. Patient had myomectomy performed three days previously, and lost much blood. Several copious saline injections were given. Only lesion found—œdema of lungs and pulmonary embolus. No peritonitis.

CASE II. (Maternity).—K. K., aged thirty-four, died 8th December, 1908. Autopsy four hours after death. Had been confined of dead child with hydramnios 18th November, 1908.

Lungs—bronchitis.

Heart healthy.

^aRead before the Section of Pathology of the Royal Academy of Medicine in Ireland on Friday, April 8, 1910.

Abdomen—general peritonitis. Purulent exudate most marked in pelvis.

Uterus somewhat enlarged; wall soft; interior clean.

Other organs normal.

Diplococcus a was recovered in pure culture from the peritoneal exudate and the endometrium.

CASE III. (Gynæcological).—M. A., aged forty-eight, died 5th February, 1909. Autopsy next day. A large tumour of right kidney (hypernephroma) had been removed thirty-one hours before death. Patient passed only $6\frac{1}{2}$ oz. urine in the intervening period.

Lungs.—Secondary tumours in both lungs.

Left kidney small, with chronic interstitial nephritis.

Other organs healthy.

In this case I believe the death was caused by the sudden strain thrown on the diseased left kidney. In the removal of the tumour a fair amount of comparatively healthy kidney substance had to be taken away.

CASE IV. (Gynæcological).—M. K., aged thirty-six, died 12th March, 1909. Had been delivered of twins two months previously, and had not felt well since. Admitted to hospital moribund.

Thorax.—Empyema of left pleura.

Abdomen full of pus.

CASE V. (Gynæcological).—C. B., aged forty-six, died 23rd March, 1909. Autopsy same day. Myomectomy 16th March, 1909.

Thorax healthy.

Abdomen.—General purulent exudate, with large quantity of free pus. Abscess in left tube and broad ligament.

CASE VI. (Gynæcological).—M. H., aged forty, died 8th May, 1909. Autopsy twenty-four hours later. A malignant, infected cyst had been removed 7th May, 1909.

Thoracic organs normal.

Abdomen.—General peritonitis with considerable purulent exudate. Very marked inflammation of lower part of peritoneum.

Organs normal.

Streptococcus recovered in pure culture and in smears from exudate.

CASE VII. (Gynæcological).—E. C., aged fifty-two, died 28th July, 1909. Died after removal of cyst while waiting for pylorotomy.

Peritonitis.—Perforation of cancerous ulcer of pylorus.

CASE VIII. (Maternity).—E. M., aged twenty-one, died 5th August, 1909. Autopsy same day. Patient had been delivered of putrefying foetus after rupture of uterus.

Thoracic organs healthy.

Abdomen filled with foul-smelling fluid. Uterus large, œdematous, very friable; large rent in posterior wall, through which a piece of the putrefying placenta had escaped.

Other organs normal.

No pathogenic germ was recovered, but putrefactive organisms were plentiful.

CASE IX. (Maternity).—M. M., aged twenty-four, died 5th August, 1909, having been admitted in advanced phthisis on 31st July, and delivered 3rd August by forceps.

Body wasted.

Thorax.—Advanced tuberculosis of both lungs, with cavities.

Abdominal organs healthy.

Uterus clean.

CASE X. (Maternity).—M. M., aged nineteen, died 28th August, 1909. Autopsy eighteen hours later. Died after spontaneous rupture of membranes in hydramnios. No trace of disease was discovered except a few drops of pus in the pelves of both kidneys.

CASE XI. (Gynæcological).—M. C., aged fifty-three, died 19th September, 1909. Autopsy next day. Died two days after admission to hospital.

Lungs.—Several masses of cancer in both lungs.

Abdomen.—Masses of cancer.

Uterus completely disorganised by cancer.

Curettings and other fragments were examined on eighty-one occasions for diagnostic purposes:—

TABLE I.—EXAMINATION OF CURETTINGS AND OTHER FRAGMENTS FOR PURPOSES OF DIAGNOSIS.

Endometritis	49	Erosion of cervix	1
Adeno-carcinoma of uterus	1	Epithelioma of vulva	1
Mucous polypus	4	Adeno-carcinoma of vulva	1
Hydatidiform mole	3	Tuberculosis débris	1
Epithelioma of cervix	1	Blood-clot, granulation	
Papilloma of cervix	2	tissue, normal, &c.	17

Proceeding on the same principle of classification as heretofore, the 49 cases of endometritis are classified as follows:—

TABLE II.—ENDOMETRITIS.

Glandular (including		Septic	13
cystic)	30	Post-abortion	3
Interstitial	2	Tubercular	1

I am aware that the classification of endometritis is in an unsatisfactory condition, and the terms used above are used rather as suggesting the most striking characteristic of the sections than as expressing fundamental distinctions. The cases described as “septic” are those in which no other changes were discovered than those we commonly associate with acute inflammation, congestion, œdema, extravasation of blood, leucocytic infiltration, and necrosis. The condition in the cases described as “interstitial,” on the other hand, is such as might be produced by a chronic inflammatory process, fibrosis of the connective tissue of the endometrium with atrophy of the glands. More than half of the specimens dealt with, however—30 out of 49—are described as “glandular,” as all of them presented a marked increase of glandular elements. In many of them there were also inflammatory lesions present, but in the present state of our knowledge we can hardly regard glandular hypertrophy as explicable purely on the hypothesis of inflammation. Its cause is still to seek. Moreover, some of the conditions described as “glandular endometritis” are indistinguishable from the hypertrophy

that occurs in early pregnancy. In two of the three cases of post-abortive endometritis the changes were such as are often seen in glandular endometritis. In two of the four cases of cystic endometritis there was a clinical history of heavy bleeding. On three occasions "hydatidiform mole" was encountered; the three curettings were, however, from one patient, and the operation was repeated at intervals of a month. On each occasion typical structures were found, but after the third curettage bleeding entirely ceased, and now after six months the patient remains quite well. Of the diagnosis of the specimen reported as "tubercular" I must admit a doubt. The clinical history of the patient as regards wasting suggested the possibility of malignant disease. In one of the first sections made I discovered a patch of apparently caseous material, surrounded by a zone of small round cells. No giant cells were seen. Sections were made of all the fragments which had been removed, but no other lesion suggesting tuberculosis was found. The patient gave a positive ophthalmo-tuberculin reaction. She has remained quite well since the curetting. The occurrence of tuberculous endometritis is rare. In five years' experience at the Rotunda I have met no specimen except this in which even a suspicion of tuberculous endometritis arose.

Tumours and operation specimens were examined in 101 cases—a considerable increase over previous years:—

TABLE III.—EXAMINATION OF TUMOURS AND OPERATION SPECIMENS.

Epithelioma of vulva	1	Tubercular salpingitis	6
Adeno-carcinoma of vulva	1	Tubo-ovarian abscess	1
Cyst of vagina	1	Hydro-salpinx	2
Epithelioma of cervix	8	Cyst of ovary	28
Adeno-carcinoma of uterus	1	Fibroma of ovary	1
Fibro-myoma of uterus	36	Prolapsed rectum	1
Tubal pregnancy	6	Carcinoma of pylorus	1
Pyo-salpinx and salpingitis	6	Retro-peritoneal tumour	1

Adeno-carcinoma of the vulva is a rare disease. We have seen it only once before in five years at the Rotunda, whereas we have met with epithelioma of the vulva on six occasions. The macroscopic appearances of the two diseases are similar, and the conditions are to be distinguished only by the microscope.

There is an unusual preponderance of epithelioma over adeno-carcinoma of the uterus—7 to 1. In the last five years we have had 31 cases of epithelioma to 14 of adeno-carcinoma. Of the 36 fibroids encountered, 13 showed more or less degeneration. Two showed fatty changes, one mucoid, four grey necrosis, one red degeneration, two were markedly œdematous, and four contained cystic spaces. These spaces are not true cysts, as they never have a definite living membrane; they appear to be merely dilatations of the lymph-spaces of the tissue by excess of fluid, filled in most instances by clear fluid, less frequently by mucoid material. In nearly all the previous cases of red degeneration which came under our notice the fibroids were co-existent with pregnancy. In the present case there was not pregnancy, but there was a great mass of inflammation of the tubes and ovaries.

Of the 28 cysts of the ovary, 14 were smooth-walled multilocular cysts, and 4 were papillary. One dermoid was met, one was part dermoid and part multilocular, and one was a malignant papillary cyst. The remainder were small cysts, such as lutein cysts, and cysts of Morgagni removed during operation undertaken for other purposes. The malignant papilloma had caused secondary growths in the uterus. The history of this case is interesting. In December, 1907, a cyst had been removed. It was for the most part smooth-walled, but there were a few papillary tufts. Microscopic examination was made of these tufts, but nothing was found to suggest malignancy. The patient returned in June, 1909, with considerable ascites. A cystic growth was removed, together with an enlarged uterus. The latter was found to contain a soft,

fungating mass, in which, however, no definite cystic or papillary structure was discoverable, though to the microscope there was no doubt of its malignancy. The cystic growth showed glandular spaces with proliferating epithelium, also malignant. A systematic examination of the original specimen was then undertaken, and in a few slides evidences of malignant epithelial infiltration were discovered. In last year's Report I mentioned two cases in which a cyst of the ovary, regarded as innocent, showed power of recurrence. This year, in addition to the case first related, another case of the same sort occurred. In January, 1909, a large cyst with nearly smooth walls, but for a few papillary tufts, was removed from a healthy woman four months pregnant. She returned to the maternity wards in June at full term, and delivered herself of a healthy child. In December she reported herself as perfectly well; nevertheless, early in January of the present year she came into hospital with a tumour in her liver and the right side of her thorax full of fluid. The pleura was tapped, and large quantities of bloody fluid were removed, but her chest speedily filled again. After three tapplings an exploratory incision into the abdomen revealed masses of cancer in her abdominal wall and liver. The patient died suddenly on getting out of bed. *Post mortem* we found small plaques of cancer in the pelvis and large masses in the right hypochondrial region. The liver and diaphragm were bound together in a mass of cancer, in which was buried a cyst containing over a pint of bloody fluid. The right pleura was everywhere infiltrated with cancer, the lung being shrunken and encased in the growth. The pericardium was slightly affected. Nowhere else in the body, not even in the abdomen, except in the pelvis and right hypochondrium, were any tumours found. In view of the frequency in our recent experience with which apparently innocent cysts have proved themselves malignant, I believe that all cysts of the ovary showing any papillomatous growths or any solid patches whatever

should be regarded as, at any rate potentially, malignant. At the same time, without making an enormous number of sections, this malignancy is not likely to be discovered by the microscope.

The case of carcinoma of the pylorus is interesting as occurring in a patient from whom a cancerous gall-bladder had been removed twelve months previously.

The uterine lochia was examined bacteriologically in 35 morbid cases:—

TABLE IV.—BACTERIOLOGICAL EXAMINATION OF THE UTERINE LOCHIA IN THIRTY-FIVE MORBID CASES, SHOWING THE ORGANISMS OBSERVED OR ISOLATED:—

Diplococcus <i>a</i> . . .	16	Bacillus coli . . .	4
„ pneumoniae . . .	10	Unrecognised bacilli	
Staphylococci . . .	5	(probably saprophytes)	7
Streptococcus . . .	2	Negative . . .	15
Gonococcus . . .	1		

These figures are similar to what we have found in previous years. The *Diplococcus a*, as usual, was associated with a mild degree of morbidity. But there was one notable exception in a case already mentioned in the *post mortem* notes. In it *Diplococcus a* had been isolated from the uterine lochia in pure culture. After some weeks' illness death occurred, and, as has been stated, the organism was also recovered in pure culture from the peritoneum. This is the first fatal case of infection with this organism which, as far as I can discover, has been recorded. The two cases of streptococcal infection were mild—an unusual occurrence. In one of them there was a very mixed infection, and I incline to think the material submitted to me was in part vaginal. After a few days' douching the patient became quite well.

ART. V.—*Dysentery or Dysenteric Diarrhœa in West African Prisons.*^a By ST. GEORGE GRAY, B.A., B.Ch., M.D. Univ. Dubl.; Senior Medical Officer, West African Medical Staff, Southern Nigeria, West Africa.

THE medical officer in charge of a West African prison is frequently confronted with a disease, or rather a group of diseases, characterised by frequent scanty stools consisting chiefly of mucus (often blood-stained), by a "cutting" or "twisting" pain in the umbilical region and by straining at stool and tenesmus. A strong man is quickly reduced to a feeble skeleton, while one already debilitated by disease, privation, or old age soon dies of exhaustion. If the patient recovers he is enfeebled, and remains unfit for work for weeks or months.

This dysentery—or dysenteric diarrhœa—is one of the most serious problems that the medical officer of a West African prison has to deal with, and to eradicate it from the prison is probably his most difficult task, hampered as he is in many cases by the most unfavourable conditions it is possible to conceive.

West African prisoners are generally recruited from the lowest and most degraded types of savages, and they resent the white man's interference with their customs—very often abominably filthy—and when they fall ill they refuse to take his medicine, and occasionally make up their minds to die, which they do in spite of all or any treatment that the medical officer may carry out or attempt to carry out. If "dysentery" gets into a prison there will surely be many cases, and probably more than one death, before the medical officer can stamp it out—if he ever does so.

When I took medical charge of Calabar Prison in November, 1907, there were many cases of dysentery and beri-beri in the prison, and the prisoners were dying at the rate of

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June 29, 1910.

from three to ten every week — my predecessor had seven deaths in one night shortly before I took over from him — the majority of these deaths being from “dysentery” or dysenteric diarrhœa. There were about four hundred prisoners in Calabar prison, and about 25 per cent. of them were constantly on the sick list either from dysentery or beri-beri. Prisoners suffering from beri-beri were isolated and sent to another district for change of air, and very few died.

With dysentery it was different. The patients were isolated in a shed outside the prison walls, and, although their diet was carefully regulated and their drinking water boiled, dysentery increased and the prisoners died at an appalling rate.

During the month of November there were more than twenty deaths, nearly all from dysentery. The drinking water was boiled, the prisoners were carefully inspected, the prison itself was thoroughly scrubbed with cyllin, izar, and other disinfectants, the walls were limewashed or tarred, and the cells were fumigated with sulphur and formalin. The windows were also enlarged to provide better ventilation.

Prisoners reported sick with diarrhœa or dysentery at the rate of two or three or more every day. Each one was given a dose of castor oil—with or without opium — and the stools were examined daily. If they contained mucus and blood the patient was given half an ounce of the following mixture every four hours:

R	Magnesii sulphatis	-	-	-	gr. 437.5
	Cupri sulphatis	-	-	-	granum
	Acidi sulphurici diluti	-	-	-	3 i
	Aquæ ad	-	-	-	3 iv M.

and the patient was sent to the isolation shed. There was almost invariably an improvement for a time, but the improvement did not always continue. The stools became less frequent and larger, and the griping pains in the umbilical region became less severe or ceased

altogether. After a few days blood and mucus disappeared from the stools, and the patient began to develop an appetite for solid food. Then the trouble began again. The patients' friends would smuggle food and native "medicine" into the prison, and the griping pains would return and blood and mucus reappear in the stools. In other cases prisoners would obtain and chew the leaf of a certain leguminous tree which caused purging with griping and tenesmus and with bloody stools. Unfortunately the Curator of the Botanic Gardens could not identify this tree. The prisoners did this in order to get off work, but sometimes they overdid it and died. One morning I caught a prisoner (who had reported ill with dysentery the day before) chewing some of these leaves. I immediately had him put into a cell and kept in solitary confinement until he recovered, which occurred in about two days. I then had a few more of the dysentery patients put into solitary cells, and these also recovered quickly, while those in the isolation shed did not. I then placed each prisoner who reported ill with "dysentery" in a solitary cell, and in less than three weeks I had the disease under control. The treatment continued the same, and the stools were examined daily. Amœbæ were found in all cases examined microscopically.

Ipecacuanha was tried but without success. Given in powder form it was promptly vomited, and the prisoners one and all would not swallow pills, either salol or keratin-coated. The difficulty of administering medicine to from fifty to seventy-five unwilling savages, who look with suspicion upon everything the white man does for them, can be realised only by one who has tried it. As a result of the solitary treatment the death-rate rapidly fell. In November there were twenty-six deaths — nearly all from "dysentery." I began the "solitary" treatment about the end of the first week in December, and in that month there were only eleven deaths from all causes. In January, 1908, there were only three deaths

in the prison, including two executions. The third was a case of dysentery that had resisted all treatment since the beginning of December, and the patient had made up his mind to die as soon as he became ill.

During February and March there were no deaths from any cause, and in April there were two deaths from pneumonia, but there was not a single case of dysentery in the prison.

Early in May I was transferred to Warri in the Central Province. There I found a state of affairs similar to what I had found in Calabar six months previously.

There are about two hundred prisoners in Warri, and these were dying at the rate of two or three a week, nearly all the deaths being due to dysentery and a few to pneumonia. I was unable to adopt the solitary treatment at Warri, as there were only four solitary cells in the prison, and I at once condemned these as unsuitable, as they were badly ventilated and very dark. The prisoners were a more heterogeneous assortment of savages than at Calabar, and their customs differed widely; but they all received the same kind of food and were subject to the same discipline.

The question of diet was a more serious one than at Calabar, as the scale of prison diets had been drawn up apparently without any regard to tribal customs, which must be taken into consideration in all dealings with natives. Some tribes would eat only one form of carbohydrates, which other tribes would not touch, but all prisoners were given exactly the same kind of food indiscriminately. An attempt had been made to give variety to the food by changing the bill of fare on certain days of the week, but the prisoners would not eat the food they were not accustomed to, or if they did they went ill with digestive troubles, often culminating in dysentery or dysenteric diarrhœa. The yam eaters starved on "foo-foo" days, and the "foo-foo" eaters went hungry when yam was the only form of carbohydrate given. Others would eat only rice, and some

wanted plantain or "garri." The leaf which caused some of the dysentery in Calabar prison was apparently not so well known in Warri, and I could not trace any cases to it.

After a careful study of the diet scales I came to the conclusion that the dysentery in Warri prison was largely due to unsuitable food and aggravated by the filthy habits of the prisoners themselves. With the consent of the executive authorities I issued instructions that each prisoner should be given the class of food to which he was accustomed in his own country if this could be done without seriously interfering with the prison regulations. This was done with the result that within three months dysentery practically disappeared from Warri prison, and no new case occurred that could not be got under control in a day or two.

Dysentery has been the scourge of West African prisons, but if more attention is paid to native customs with regard to diet, and if those who deliberately eat noxious plants or garbage (gangs of prisoners working outside the prison frequently raid dust bins and rubbish heaps in search of scraps of food) are kept where they cannot obtain these delicacies it will cease to be dreaded as it is now by prison medical officers, and it will be regarded as merely one of the incidental ailments of prisoners, as it is of all classes who reside in the tropics.

With regard to the disease itself the symptoms which are fairly constant are frequent and scanty stools passed with great straining, often consisting of nothing more than a drachm or two of mucus—generally, but not always, streaked with blood—and occasionally dirty grey sloughs smelling abominably offensive. The patient complains of griping pains in the umbilical region, as if his bowels were being twisted or "tied with knots." There is usually a moderate rise of temperature at first, but later it becomes subnormal. The patient becomes emaciated and exhausted from the constant straining, and when death occurs it is from exhaustion, the body being literally

worn out. The tongue is coated with a dirty fur or stripped in patches, and the teeth are covered with sordes. The urine is scanty, and hæmorrhoids are not uncommon.

Post mortem the mucous membrane of the colon may be more or less completely covered with sloughing ulcers (gangrenous colitis). In other cases there are mere patches of inflammation of the mucous membrane, but this is generally in those who died shortly after chewing the "leaf," which is sometimes found in the bowel, when the whole intestinal tract is affected. Hæmorrhage is not profuse, and perforation is unusual.

Amœbæ (*Entamœba histolytica?*) have been found in all cases microscopically examined, but the finding of protozoa in the stools is no evidence that they are the cause of the disease, as amœbæ may be found in patients not suffering from dysentery.

I have not seen a case of liver abscess in any of these prisoners. They either die or are discharged from prison, and are lost sight of before liver abscess occurs.

Treatment. I have had such good results with sulphate of magnesium that I have not had occasion to try any other drug. Ipecacuanha has not been a success with prisoners for the reasons mentioned above, and it may be questioned whether the ipecacuanha treatment has any advantage over irrigation and gentle saline purgation. Opium appears to be positively harmful. It soothes pain and gives temporary relief, but the patient does not get better, and I have, therefore, discarded it altogether in the treatment of dysentery.

Diet.—This must be in accordance with the native customs, which vary in the different tribes. Very few natives of West Africa will touch milk, which is not suitable in any case. Arrowroot pap made with water is good when they can be persuaded to take it; but in the majority of cases they seem to do well on yams, plantains, garri, or other native foods that would give the physician occasion for the greatest anxiety if the patient were

a European. They like plain biscuits, however, and this is about the only form of "white man's chop" that can be given with safety to all.

ART. VI. *Temperature Curve in Pulmonary Tuberculosis.*^a By MADELEINE S. BAKER, B.A., B.Ch., B.A.O., M.D. Univ. Dubl.: Assistant Medical Officer, Consumption Sanatoria of Scotland, Bridge of Weir, Renfrew, N.B.

ALTHOUGH in treating pulmonary tuberculosis it is usual to regard the temperature range as the most reliable guide to the patient's condition and progress, no other clinical aspect of the disease has offered to my mind such difficulties of interpretation.

On referring to the writings of experienced workers in this special branch of Medicine, one finds that many attempts have been made to classify the various types of fever, and to explain on pathological or bacteriological grounds, their presence in relation to the different stages of the disease in its active, and inactive, forms. Such classifications, however, offer little satisfaction to those who are being continually confronted by the striking polymorphism of the temperature range and its attendant manifestations exhibited by phthisical patients.

I have attempted here to consider only some points bearing clinically on its diagnostic, prognostic, and therapeutic significance.

Technique of Temperature Measurement.—The number of observations to be made daily must vary according as the record kept is to be used in the supervision of recognised cases of pulmonary tuberculosis, or as an aid to the diagnosis of the disease in its incipient stage. The tendency to error in either case appears to be on the side of infrequent rather than too frequent taking of the temperature.

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June 29, 1910.

In English sanatoriums the method of twice daily records at twelve-hourly intervals (6 a.m. and 6 p.m.) is usually adopted, and where large numbers of patients are aggregated together has much to recommend it: occasionally, one intervening reading is added. The Continental, or Nordrach, system requires that the temperature shall be taken at least four times daily—on waking at 7:30 a.m., at 12 noon, at 3 p.m., and at 6 p.m. In special cases where a diagnosis is aimed at, two-hourly observations should be made. Extensive comparisons of axillary, oral, and rectal temperatures have shown that oral and rectal methods only should be regarded as accurate, and although observers disagree as to the respective advantages of either method, the consensus of opinion is in favour of the oral reading. English and American writers notably are advocates of this method, on the grounds that reasonably accurate measurement may be made, provided that the thermometer, regardless of the instrument used, remains in the mouth full five minutes when the patient is indoors, and ten to fifteen minutes out of doors.

Minor¹ has observed the graphic curve so obtained to run parallel with the axillary and rectal curves, exceeding the former, and coming short of the latter, by half a degree F. He, however, quotes the observation of Braine-Hartwell and Saugman, which differed in showing a marked amplitude of variation between the two readings.

This writer also points out the advantage of the oral method when two-hourly records are made, in that, unlike the rectal method, it does not necessitate the patient retiring to the bedroom at such frequent intervals. To these arguments on the physician's part may be added the fact that it is not a disagreeable procedure or one liable to offend the patient. On the other hand, many excellent observers urge the taking of the rectal temperature; Penzold, Walthers, Braine-Hartwell, and Saugman² advocate it strongly, and it is the method adhered to by

the English physicians who introduced the Nordrach system into this country. That the rectal temperature, being less subject to external influences, is the most absolutely correct has universal acceptance, and for this reason it may sometimes be advisable, when a patient first comes under observation, for the physician to become familiar with the rectal range as a control of the mouth reading, in order that the relative accuracy of the latter having been established it may be relied upon for constant use.

Brief reference must be made to some local sources of variation leading to errors of technique. In making oral readings, noticeable differences result according as the patient is indoors or out of doors. Lawreson Brown advises that in cold weather the patient shall come indoors ten to thirty minutes before the temperature is taken. Special attention should be paid to this precaution in the case of mouth breathers in whom errors of reading result on cooling of the buccal mucous membrane during respiration. For a similar reason exercise may cause an immediate fall of oral temperature, owing to the more rapid respiration it produces. Occasionally I have found a markedly subnormal oral temperature on waking to be fallacious, registering as much as a degree F. lower than the axillary temperature, and on inquiry have obtained from the patient a history of dryness of the mouth on waking suggestive of mouth breathing during sleep. Curiously enough, these patients exhibited no such error at the evening observation.

Inaccuracies may also result if the temperature be taken too soon after the ingestion of hot or cold food. In all cases the lips should remain closed when the thermometer is inserted and speaking should be forbidden.

Local sources of variation in the rectal temperature may be limited to the effect of hyperæmia, resulting on an ischio-rectal abscess or a general pelvic congestion.

Physiological Variations.—Since the recording of slight variations is of such importance, both in diagnosis

and treatment, it is desirable to become familiar with those which are of physiological origin, and occur to a greater or less degree in normal individuals. In phthisical patients, especially those in the early stage of the disease, the temperature exhibits an abnormal instability, due to a hypersensibility of the heat centre, resulting on a slight tubercular intoxication, and its range may, therefore, be expected to show in exaggerated and misleading forms fluctuations which are in reality merely physiological. The significance of such variations is one of degree rather than of kind.

Age, influence.—In children³ the temperature range may be relatively higher than in adults, although this is not invariably the case. As old age advances the temperature is relatively lower, pyrexia being possibly absent even when the disease is active.

Taking of Food.—As in normal persons the taking of food produces a rise of temperature; in early cases this post-prandial rise may be very marked, and if a heavy mid-day meal be taken may so alter the daily curve that its maximum is reached between 2 and 3 p.m. Papillon⁴ found this digestive fever to be high in anæmic individuals.

Effect of Exercise.—Bonney⁵ attributes the confusion existing, as to the effect of exercise on the body heat, to the facts that the immediate oral temperature (as shown above) is fallacious, while the immediate rectal temperature shows a physiological rise (as high as 100.4° F. in health) which is ephemeral and rapidly subsides.

An exaggeration of this physiological rectal rise was found by Penzold to occur in tubercular individuals, and is usually referred to as Penzold's reaction. That fever of pathological significance produced by exercise may be recognised in the mouth or rectum, only after a period of rest, is now well known.

Since Wright's⁶ elaboration of the opsonic theory, the importance of the influence of exercise upon the temperature range has been shown by the brilliant researches

of Drs. Paterson and Inman, at Frimley. They found that the variations in temperature may be taken as a measurement of the auto-inoculation resulting on the liberation, by exercise, of toxin (tuberculin) in the body, as indicated by a rise or fall of the patient's opsonic index. Furthermore, they made a practical use of their results in establishing the therapeutic value of graduated labour, regulated by the temperature curve in accordance with the history of auto-inoculation, in convalescing cases.

Menstruation.—The influence of the menstrual function on the temperature curve of phthisical women appears to have attracted little attention. Lawreson Brown⁷ merely states that in 56-60 per cent. of women patients a rise of temperature occurs before or during menstruation.

Dr. Cuthbert Welsh,⁸ in a recently published article on this subject, quotes the account of the temperature curve in normal women given by Dr. A. E. Giles,⁹ who found that the temperature begins to rise about the middle of the intermenstrual period, attains its maximum two days before the onset of menstruation, and falls suddenly on the day immediately preceding it, a second depression occurring towards the end of the period, "the total variation only amounting to half a degree Fahrenheit." Dr. Welsh analysed the charts of 500 female patients and found that the most frequent variation in early phthisis was an exaggeration of the normal depression during the period—the premenstrual rise occurring only in three cases. In intermediate and advanced cases he found that a premenstrual rise was marked in over 50 per cent., while the above depression only occurred in 14 per cent.

In a series of fifty cases I have found 10 per cent. of early^a and 58 per cent. of intermediate and advanced cases to show a premenstrual rise of temperature.

Pathological Variations.—The presence and persistence

^a Early, intermediate and advanced correspond to Turban's original classification into stages I., II. and III.

of fever may at times be associated with pathological conditions other than those existing in the chest. A sudden sharp rise of temperature more frequently results on some tubercular, or non-tubercular, complication rather than on an increased activity, or extension, of the local lesion. It would be impossible here to enumerate the many complications of phthisis associated with fever; but there exist some whose special interest attaches to the fact that they readily yield to treatment, and their attendant fever may be so controlled.

Digestive disturbances following indiscretions of diet may cause a pyrexia of several degrees, which rapidly subsides under the influence of calomel and dietary. Constipation, by producing septic changes in the intestinal tract, may also influence the temperature range to an equal or less degree; similarly an oral sepsis may be, and I believe often is, the unsuspected cause of a mild pyrexia.

Last year the following case came under my observation:—K. W., a sanatorium patient, in the early stage of the disease, exhibited a slight intermittent fever persisting despite prolonged treatment and a gradual disappearance of physical signs from the lungs. As there was a marked oral sepsis it was decided to risk the administration of a general anæsthetic, and the carious teeth were removed, with the result that the temperature fell to normal within a week, the patient leaving the sanatorium two months later with the disease apparently arrested.

In neurotic and neurasthenic patients a pyrexia of purely nervous origin may occur in phthisis as in other diseases, of which the so-called "thermometer fever" is a well-recognised example. Probably to this origin also may be attributed the curious phenomenon occasionally exhibited in the temperature range of pyrexial patients, who, after undergoing prolonged rest in the open air without a reduction of temperature, may suddenly lose their fever on being allowed to get up and walk about. There is at present

in this sanatorium a girl, aged sixteen, in the intermediate stage of the disease, who, for thirteen weeks following her admission, was kept strictly at rest owing to an intermittent fever ranging as high as 102° F. at night. As there was no marked malnutrition, and as the physical signs were disproportionately few in comparison with the amount of fever, she was then got up and allowed to walk about the grounds, which concession was immediately followed by a fall of temperature to normal or thereabouts, the pulse-rate exhibiting a corresponding diminution.

Diagnostic Significance.—Unfortunately in afebrile cases the significance of the temperature curve is somewhat limited, but if fever be present no other diagnostic feature is of greater importance. Authorities agree that for the temperature chart to be an aid to diagnosis, the recording of the two-hourly temperature during the day in the form of a graphic curve, for a period varying from one week to one month, should be insisted upon by the physician. No warning given by writers can be so convincing of the necessity of such apparently over-frequent observations as the study of the charts of patients whose temperature has been taken at four-hourly intervals.

In such records of early cases I have often seen intervening between a normal or sub-normal morning and evening register an elevation to 99.5° or 100° F. about twelve noon, and have been struck by the erroneous impression resulting on the omission of the mid-day reading from these charts. To those who, on the grounds of a possible perturbation being produced in the patient, raise objection to this method, Minor gives the following warning¹⁰:—"Better is it for the doctor to fear a mistake in diagnosis than to fear alarming a neurotic patient."

Since a tendency to sweat or a restless sleep may be the only subjective symptoms of a slight pyrexia, the statements of patients with regard to fever are often misleading, and should never be accepted independent of the use of the thermometer. Turban¹¹ relates a case in which the taking of the temperature merely from curiosity revealed

a moderate pyrexia (100.4° F.), and led to the discovery of an unsuspected phthisis. In no case should the absence of fever be considered to exclude tuberculosis.

Williams and Minor believe that, irrespective of the daily variation, a temperature subnormal on waking and before rising is "of real diagnostic value,"¹² although an exactly similar depression is found in other chronic diseases, and even in apparently healthy individuals. Taken in conjunction with other subjective symptoms, a persistent subnormal temperature (*i.e.*, one below 97.8°) or a daily fluctuation between a markedly subnormal, minimum, and normal maximum of range, should always be regarded as diagnostic, the latter type of curve being constantly associated with a smouldering phthisis.

Turban¹³ considers an oral temperature of 99.3° F. during rest, if frequently recurring, as a fever, and if such an elevation cannot be accounted for otherwise, it may be regarded as confirmatory evidence of a tubercular lesion.

Penzold's reaction has also been considered of diagnostic value, but since a pelvic inflammation may cause a similar reaction it should be taken only "with reserve." Darenberg holds that a persistent rise of temperature after exercise is diagnostic even in the so-called pretubercular stage.

Much diagnostic importance is to be attached to the influence of tuberculin on the temperature range. Briefly, Koch's¹⁴ tuberculin test (which is only to be used in apyrexial cases) consists of the administration of Old Tuberculin, in an initial dose of 1 mgr., which, in the absence of reaction, is followed at intervals of three days by 2, 5, and finally 10 mgrs., two-hourly temperature measurements being made. A rise of temperature to 100° F. or higher occurring after any one injection, and recurring on its repetition, may be considered a positive reaction.

Local temperature changes have also been suggested as diagnostic tests. It has been stated that the tempera-

ture is higher on the side of the body on which the disease exists. Recently Frugoni and Leidi¹⁵ have published a method of topographical diagnosis. They observed slight local temperature variations resulting upon the injection of small doses of tuberculin, by means of specially-constructed thermometers applied to the skin, and found variations of three-tenths to seven-tenths of a degree, to occur over the diseased area of the lung, even in cases where there was no rise in general temperature. An inverse type of temperature range should be considered to suggest tuberculosis, as should also a marked premenstrual fever in the absence of pelvic lesions.

In considering the influence of mixed infection on the temperature curve, and the possibility of its diagnosis from the chart alone, one is confronted by clinical difficulties to which the conflicting views of equally reliable observers offer little solution. Several writers on the results of their own experiments deny the existence of mixed infection and regard all fever as the result of the activity of the tubercle bacillus alone, and bring forward as confirmatory evidence that fever may be produced by the injection of tuberculin. Others, again, maintain that a simple uncomplicated tuberculosis is afebrile, a theory which offers no explanation of the fact, that clinical signs pointing unmistakably to a spread, or increased activity, and of a limited lesion in the lung, are so constantly attended by a rise of temperature.

Streptococcal Curve.—The tendency is to regard a temperature intermitting between a subnormal or normal morning, and high afternoon range, the so-called hectic fever, or fever of absorption of older writers, with its attendant manifestations, as presumptive evidence of the presence of pyogenic organisms, although clinical and bacteriological findings are not always in accordance with this view. Turban, from a series of laboratory investigations, has confirmed the occurrence of hectic fever in phthisis without the presence of mixed infection, and

since an exactly similar curve may also be associated with a simple tubercular pleurisy or peritonitis, it may be concluded that mixed infection cannot be diagnosticated from the temperature chart alone.

Prognostic Significance.—Despite the fact that the temperature range has no fixed relation to the morbid changes in the lungs, no other clinical feature offers so reliable a criterion on which to form conclusions as to the patient's future.

It is usual to regard the absence of fever as a hopeful sign although occasionally it will be found that rapidly-advancing cases remain apyrexial throughout. The significance of a subnormal temperature range may best be considered in relation to the circulatory condition present. So long as the pulse remains good a subnormal oral temperature is not of serious import, but when present in conjunction with a rapid pulse and low intra-arterial pressure it may be regarded as a very serious sign.

In uncomplicated cases the presence of fever is conclusive evidence of the activity of the disease, and if persistent must influence the prognosis unfavourably. Continuous and remittent fevers are often present in rapidly-advancing cases, and indicate more certainly than any other sign a progressing disease. An intermittent fever of the hectic type is so frequently associated with cavitation that its presence must necessarily darken the outlook, while an intermittent temperature curve whose amplitude of variation is less marked, yields more readily to treatment than continuous or remittent fever.

Many observers regard an inverse fever with anxiety, and the sudden appearance of a high inverse range in afebrile cases is specially significant, being often associated with the onset of a miliary infection. The behaviour of the temperature curve under the influence of open-air treatment and rest is a valuable prognostic guide. Cases which exhibit a rapidly subsiding temperature range under treatment are especially hopeful, while those which show a persistent fever and impaired

nutrition under like circumstances hold out little hope of recovery; so long, however, as the nutrition remains good there may eventually occur a subsidence of fever. In charts which show an irregular range where periods of pyrexia occur at intervals a lengthening of the apyrexial periods is to be looked for in favourable cases.

A fever suddenly appearing on the second to the fourth day after an hæmoptysis, accompanied by dyspnœa and cyanosis, and persisting without remission, may always be regarded with the gravest apprehension as indicating the onset of an aspiration-pneumonia, a complication which almost invariably proves fatal.

I shall not attempt here to consider the various therapeutic measures directed against the fever of phthisis—the effect of rest, hydrotherapy, drug-therapy, and tuberculin-therapy are subjects in themselves too wide to be even touched on here. But in view of the interest recently excited in the successful results published by physicians who have treated phthisis with continuous antiseptic inhalations, in conclusion I may add that in a series of twenty-three cases so treated, the periods varying from three to eighteen weeks, only in four have I found the temperature range to be favourably influenced—all four cases being in the advanced stage of the disease.

REFERENCES.

- ¹ Klebs. Tuberculosis. P. 161.
- ² *Ib.* P. 161.
- ³ W. Taylor Cummins. Tuberculosis in Infancy and Childhood. Kelynnack. P. 20.
- ⁴ Tuberculosis. Klebs. P. 164.
- ⁵ Pulmonary Tuberculosis. Bonney. P. 620.
- ⁶ Lancet. Jan. 25, 1908.
- ⁷ Osler and McCrae. System of Medicine. Vol. III. P. 328.
- ⁸ Lancet. March 5, 1910.
- ⁹ Giles. Obstetrical Transactions. Vol. XXXIX. 1897.
- ¹⁰ Klebs. Tuberculosis. P. 160.
- ¹¹ Diagnosis of Tuberculosis of the Lung. Turban. P. 19.
- ¹² Klebs. Tuberculosis. P. 163.
- ¹³ Turban. Diagnosis of Pulmonary Tuberculosis. P. 17.
- ¹⁴ Bandelier and Roepke. P. 42.
- ¹⁵ Rif. Med. Feb. 21st. 1910.

ART. VII.—*Why has Small-pox declined in Prevalence and Fatality?*^a By SIR JOHN MOORE, M.A., M.D., D.P.H., Dubl.; D.Sc., Oxon.; F.R.C.P.I.; Physician to the Meath Hospital, Dublin.

BEFORE attempting to answer this question, let us see whether the fact is as stated—is it true that small-pox has declined in prevalence and fatality?

In the second volume of Allbutt and Rolleston's "System of Medicine," published by Macmillan & Co. in 1906, will be found a masterly article on "Vaccination as a Branch of Preventive Medicine." The author is Dr. John C. McVail, County Medical Officer of Health for Stirlingshire and Dumbartonshire. He writes: "The extent to which small-pox prevailed is sufficiently indicated by the opinions which were held of its inevitability. Rhazes incidentally mentions that 'hardly any one escapes' attack. His Greek translator, about the end of the tenth century, says that 'every man is born liable' to small-pox. In the sixteenth century, Mercurialis states that almost every person must have it once, and Vidus Vidius regards it as a disease attacking all persons in the course of their lives."^b Dr. McVail tells us that there is a curious record regarding small-pox in the village of Ware in Hertfordshire. "In 1722 the population was 2,515, and at the end of a small-pox epidemic in that year there were only 302 persons who had never had the disease. These 302 persons are not described merely as not having suffered from small-pox, but as 'to have the small pox.' In Chester, according to Dr. Haygarth, in 1775 only 1,060 persons out of a total population of nearly 15,000 had not suffered from small-pox at some time in their lives." Turning the foregoing figures into percentages, we find

^a Read before the Section of Preventive Medicine and Vital Statistics, at the Birkenhead Congress of the Royal Institute of Public Health, on Wednesday, July 20, 1910.

^b Loc. cit., page 768.

that in Ware, in 1722, 82 out of every 100 inhabitants had had small-pox, while in Chester, in 1775, 93 per cent. of the population had had small-pox at some time or another.

Examples could be multiplied of the wide-spread prevalence of small-pox in the eighteenth century. The death-toll of the disease also was appalling. In Glasgow, between 1783 and 1800 (both years included), there were 5,959 deaths from small-pox in a total of 31,088 deaths from all causes—that is to say, one in every 5 deaths was caused by this disease. Here, again, it is not necessary to multiply examples.

With the introduction of vaccination at the beginning of the nineteenth century the prevalence and fatality of small-pox diminished quickly, and this, too, although the adoption of the practice was far from universal. In fact, only a minority of the population underwent the operation, the majority for some years after vaccination began to be practised being already protected by the antecedent prevalence of natural and artificial small-pox in the closing years of the eighteenth century. According to the London Bills of Mortality the deaths from small-pox numbered 20,923 in the ten years ended 1780; 17,687 in the next ten years, and 18,477 in the last decade of the century. In the first ten years of the nineteenth century the deaths fell to 12,534, in the second ten years to 7,858, and in the third ten years to 6,950, although the population had risen from 746,233 in 1801 to 1,180,292 in 1831.

In 1840 the first Vaccination Act for England and Wales was passed. It was intituled “An Act to extend the Practice of Vaccination (3 & 4 Vic., cap. 29),” and by a special section was extended to Ireland. Inoculation was made illegal under its provisions, but vaccination was not made compulsory. In August, 1853, at the instance of the Epidemiological Society, “An Act to extend and make compulsory the Practice of Vaccination” was passed, but its provisions applied only to England and Wales. In 1863 an Act was passed making vaccination compul-

sory in Ireland (26 & 27 Vic., cap. 52): and in 1868 a short Act (31 & 32 Vic., cap. 87) made inoculation with variolous matter a penal offence in Ireland, and provided that persons vaccinated by the Public Vaccinator should not be considered as in receipt of poor law relief. Under section 147 of the Public Health (Ireland) Act of 1878 (41 & 42 Vic., cap. 52) a justice of the peace may make an order for the vaccination of any child under fourteen years who had not been previously successfully vaccinated. A similar provision had been embodied in section 31 of the English amending and consolidating Vaccination Statute of 1867 (30 & 31 Vic., cap. 84). In 1879 the last Act dealing with vaccination in Ireland was passed (42 & 43 Vic., cap. 70). This Act very properly reduced the time within which a child should be vaccinated from six to three months.

In Scotland the Vaccination Law is practically comprised in one statute which was enacted in 1863 (26 & 27 Vic., cap. 108), and which made vaccination compulsory in that division of the United Kingdom.

The English Consolidation Act of 1867 has been amended in 1871 (34 & 35 Vic., cap. 70 & 98), 1874 (37 & 38 Vic., cap. 75), 1898 (61 & 62 Vic., cap. 49), and 1907 (7 Edw. VII., cap. 31). The Scottish Act was also amended in 1907 (7 Edw. VII., cap. 49). These latter enactments are, from the sanitarian point of view, reactionary, for they have given the anti-vaccinators and so-called "Conscientious Objectors" a legal status which had hitherto been unheard of in sanitary legislation, and which, indeed, would not be tolerated in the Public Health Acts.

The reason for this "legal" digression is to emphasise the fact that small-pox has always been regarded as a very special member of the group of the acute febrile infections, one which required a very special method of preventive treatment and control. The special legislation intended to meet these ends is that of which I have briefly sketched the history above.

In the General Report of the Commissioners for taking the Census of Ireland in 1881, a paragraph occurs which throws a lurid side-light on the prevalence of small-pox and the mischief it inflicted on the population of this country prior to the year 1880. The paragraph in question runs thus:—

“A large number of cases of *blindness* have been attributed to small-pox in the returns for each successive Census period. In 1871 the number so stated was less by 199 than in 1861. We have again to announce a further diminution. The number returned in 1881 is 359, against 526 in 1871, showing a decrease of 167. The diminution of destructive eye affections in small-pox is to be attributed to two causes. In the first place, the modifying influence of vaccination has diminished not only the frequency of small-pox, but also the virulence of the disease, and, other things being equal, loss of sight from small-pox should be less frequent than formerly. The other important element, however, is the fact that ophthalmia has also diminished. It is a peculiarity of the small-pox eruption to attack most severely the more vascular parts; hence, an eye influenced by ophthalmia is much more liable to the attack of the small-pox eruption than a healthy eye.”

The saddest feature in relation to blindness due to variolous ophthalmia is its incidence on the very young. Among the 526 cases of blindness referred to small-pox in the ten years ended 1871, were 157 children under five years of age, 100 aged between five and ten years, and 39 between ten and fifteen—296 in all under the age of fifteen years. Think of the horror of it!

“Sterben ist nichts—aber leben und nicht sehen

“Das ist ein Unglück.”—*Goethe*.

In the Census of 1891, the number of cases of blindness attributed to small-pox was 221, compared with 359 in 1881. In the Census of 1901, there was a further substantial diminution of such cases to 128—a decrease of 93. Of the 359 cases reported in the Census of 1881,

164 were children under fifteen years of age; among the 221 cases referred to in the Census of 1891, there were 97 children under that age.

The waning prevalence of small-pox in the first decade of the twentieth century encourages the hope that in the Census of 1911 few, if any, cases of acquired blindness will be referred to this pestilence of by-gone days.

Through the courtesy of Sir William J. Thompson, M.D., Registrar-General for Ireland, and of Dr. Thomas J. Stafford, F.R.C.S.I., Medical Commissioner of the Irish Local Government Board, I have been furnished with information regarding the mortality caused by small-pox in Ireland and the total numbers of primary vaccinations year by year from 1868 to 1908, inclusive—that is to say, in 41 years. This information I have thrown into a table (Table I.), which also contains a column giving the estimated population of Ireland in the middle of each year during the same period. In using this Table it is necessary to remember that the figures in the third column show only the number of vaccinations performed each year by the Medical Officers of Dispensary Districts throughout Ireland. It is estimated that the Dispensary Medical Officers perform about 90 per cent. of all the vaccinations in this country. It should also be mentioned that, up to a few years ago, no distinction was made between Primary Vaccinations and Re-vaccinations both were formerly grouped together in the Returns to the Local Government Board, and in the claims for fees sent in to the several Boards of Guardians by the Dispensary Medical Officers, acting as Public Vaccinators. This latter fact accounts, together with the decreasing population, for a falling off in the number of successful vaccinations in most of the years since 1885.

The second column indicates the occurrence of four epidemics of small-pox in the forty-one years embraced in the Table. The first and most violent and deadly out-

TABLE I.

Showing—(1) *The Number of Deaths from Small-pox registered in Ireland each Year from 1868 to 1908, inclusive.*
 (2) *The Number of Successful Vaccinations in each of the said Years.*
 (3) *The Estimated Population of Ireland in the middle of each of the said Years.*

YEAR	No. of Deaths Registered from Small-pox	No. of Successful Vaccinations in each year	Estimated Population	YEAR	No. of Deaths Registered from Small-pox	No. of Successful Vaccinations in each year	Estimated Population
1868	23	131,426	5,465,914	1889	—	92,621	4,757,385
1869	20	125,672	5,449,094	1890	—	93,368	4,717,959
1870	32	140,220	5,418,512	1891	7	92,267	4,680,376
1871	665	179,889	5,398,179	1892	—	89,527	4,633,808
1872	3,248	282,484	5,372,890	1893	1	88,695	4,607,462
1873	504	138,873	5,327,938	1894	72	107,204	4,589,260
1874	569	139,587	5,298,979	1895	146	92,227	4,559,936
1875	535	137,340	5,278,629	1896	4	88,817	4,542,061
1876	24	114,487	5,277,544	1897	3	89,732	4,529,917
1877	71	117,679	5,286,380	1898	—	87,169	4,518,478
1878	873	135,045	5,282,246	1899	1	84,937	4,502,401
1879	672	126,911	5,265,625	1900	1	91,150	4,468,501
1880	389	147,828	5,202,648	1901	2	88,520	4,445,630
1881	72	113,557	5,145,770	1902	1	94,303	4,432,274
1882	129	107,613	5,101,018	1903	40	95,955	4,413,658
1883	16	106,961	5,023,811	1904	16	91,976	4,402,182
1884	1	105,021	4,974,561	1905	5	89,394	4,391,565
1885	4	102,680	4,938,588	1906	—	90,171	4,388,006
1886	2	97,137	4,905,895	1907	1	89,207	4,377,064
1887	14	96,866	4,857,119	1908	—	88,576	4,371,455
1888	3	93,520	4,801,312				

break raged from 1871 to 1875. It slew 5,521 of its victims. The second outbreak also prevailed for five years, or perhaps six—from 1877, with 71 deaths, to 1882, with 129 deaths—the total number of fatal cases being 2,206. The third, a feebler, outburst lasted through 1894 and 1895, killing 218 persons. And the fourth, of still more restricted dimensions, began in 1903 and ended early in 1905, the victims numbering only 61.

TABLE II.—*Showing the Deaths from Small-pox in the German Empire during the Years 1886 to 1908 inclusive, and the Cases of the Disease reported in each of the Years, 1896 to 1908.*

YEAR	Cases	Deaths	Death-rate Per cent.	YEAR	Cases	Deaths	Death-rate Per cent.
1886	?	197	?	1896	92	10	10.87
1887	?	168	?	1897	45	5	11.11
1888	?	112	?	1898	129	15	11.63
1889	?	200	?	1899	346	28	8.05
1890	?	58	?	1900	392	49	12.25
1891	?	49	?	1901	375	56	14.93
1892	?	108	?	1902	114	15	13.16
1893	?	157	?	1903	172	20	11.63
1894	?	88	?	1904	189	25	13.23
1895	?	27	?	1905	212	30	14.15
				1906	256	47	18.36
				1907	345	63	18.26
				1908	434	65	14.98
					3,101	428	Mean 13.80
Totals of 13 years, 1896-1908							

Since 1905 only one death has been referred to small-pox in Ireland, and that death was of a man who carried the disease with him from Glasgow to the County Dublin,

where he died three days after his arrival. He had been vaccinated in infancy, and one mark was distinguishable, but he had not been re-vaccinated.

In 1909, the deaths registered in England and Wales numbered 518,075. Among these, 12,467 were attributed to measles, 10,079 to diarrhœa, 6,979 to whooping-cough, 5,160 to diphtheria, 3,169 to scarlet fever, 2,154 to "fever" (chiefly enteric), and 21 to small-pox. Two-thirds (14) of the deaths from small-pox took place in the seventy-six great towns of England and Wales—8 in Bristol, 2 in London, 2 in Hull, 1 in Cardiff, and 1 in Swansea. Small-pox was notified during 1909 in 13 of the 76 towns. The notifications numbered 85 in all, of which 35 were in Bristol, 21 in London, 6 in Hull, and 5 each in Liverpool and Bolton. Compare these figures with the notifications of scarlet fever 67,319 cases—and of diphtheria—22,882 cases!

By the favour of the President of the Imperial Health Department (Das kaiserliche Gesundheitsamt), Berlin, I am in a position to place before you the most recent statistics bearing on the prevalence and fatality of small-pox within the confines of the German Empire. The facts are embodied in Table II. I have no information as to the total number of cases which occurred each year from 1886 to 1895. But from 1896 to 1908 inclusive the annual attacks as well as the deaths are given; and this has enabled me to calculate the percentage mortality from the disease. In the 13 years in question there were 3,103 attacks, of which 418 proved fatal, giving a percentage mortality of 13.12. The comparatively small number of deaths in thirteen years, considered in the abstract, appears in a still more favourable light when one realises the fact that a considerable proportion of the persons who died of small-pox were foreign to German soil. For example, among the total number of 30 fatal cases in 1905 were 15 foreigners (50 per cent.)—namely, 7 Italians, 3 Russians, 2 French, 1 Belgian, 1 Norwegian, and 1 Austrian. Of 65 victims in 1908, 27 were

foreigners, or 41.54 per cent. of the total number, and included among them were 24 Russians.

The figures for 1907 and 1908 are 63 and 65 deaths respectively—a considerable increase over the numbers for the previous five years—namely, 47, 30, 25, 20, and 15—and over the average of 29 deaths for the decennial period from 1897 to 1906.

In 1907, 63 deaths in a population of 61,994,743, represented a death-rate of 0.10 in every 100,000 persons.

In 1908, 65 deaths in a population of 62,849,563, represented a death-rate of 0.10 in every 100,000 persons.

But compare these figures with the Russian statistics. In Russia, in which country there is no compulsory vaccination, out of a population of 70,818,000 in 1907, there were 33,388 deaths from small-pox, or 47.15 deaths among every 100,000 persons. In 1908 things were even worse, for among a population of 66,571,584, small-pox slew 34,323 persons, or 51.56 among every 100,000 of the population.^a

Is it any wonder that, in the face of these figures, Germany should have felt the tremor, as it were, of the Russian outbreak? As a matter of fact, among the 345 cases of small-pox which occurred in the German Empire in 1907, 75 Russians were included: while in 1908 among 434 cases were 133 Russians.

In the House of Commons, on Wednesday, June 29, 1910, Mr. A. W. Black, the member for North Bedfordshire, asked the President of the Local Government Board, with reference to the Report on the preparation and storage of glycerinated calf lymph in Berlin and other places abroad, contained in the Supplement to the Twenty-sixth Annual Report of his Department, whether in the three years 1906-7-8 there had been in England, with a great decrease in vaccination, 43 deaths from small-pox, while in Prussia, with approximately the same population,

^a From the monthly publication "*Nombre des décès par maladies épidémiques dans les gouvernements et provinces de la Russie.*" (*Westnik obschtschestvennoy gigieny*, etc., 1908 & 1909).

there had been 134 deaths from that disease in the same period; and whether there was any reason to suppose that the rigorous enforcement of compulsory vaccination had been at all relaxed in Prussia in the three years referred to. Mr. Burns replied that during the three years 1906-7-8 there were 107 deaths from small-pox in Prussia according to the official reports of the Imperial German Central Health Department, and not 134 as stated in the question. On the information before him, he had no reason to believe that any relaxation in the enforcement of vaccination had taken place in Prussia. He might add that the 107 deaths from small-pox were derived from 690 notified cases: and that of this number 219, or nearly one-third, were foreigners, chiefly from Russia, where there was no compulsory vaccination, and where during the period in question small-pox had been widely epidemic.

In a work on "Small-pox and Vaccination in India,"^a published last year, the author, Major S. P. James, proves conclusively that the fall of small-pox mortality in British India coincides with the rise of vaccination in that great Empire.

In an appreciating notice of Major James's work in *Nature*, for July 7, 1910, the writer observes:—

"Major James's work deals with small-pox in India—that is, in a country, as the author bids us bear in mind, where the people 'live amid surroundings which could not be more favourable to the spread of epidemic disease if they had been especially devised to that end.' In a country 'where sanitation is still in its infancy,' where a continually growing proportion of the population lives in the towns and cities, where there is an enormous and continued extension of movement among the population and of communication within the country generally, where that typical 'insanitary' disease, cholera, has on the whole increased, and where, in spite of all this, small-pox has decreased. Those who have studied the decline

^a Calcutta: Thacker, Spink & Co. 1909.

or disappearance of small-pox in other countries know that there is one, and only one, factor which could explain such a phenomenon viz., vaccination; and that vaccination is the cause of the decline in India the author shows in plain and easily understood language, and with the aid of simple statistics that require no alleged 'jugglery' for their setting forth."

The following simple tables will suffice to give an idea of how small-pox had decreased in British India from periods in which there was "less" vaccination to those in which there was "more":—

DISTRICTS	1868-1887	1888-1907
	Small-pox Death- rate per	Small-pox Death- rate per
	Million of Population	Million of Population
Bombay - - -	537.2	240.5
Central Provinces - -	1020.1	502.7
Punjab - - -	1099.3	520.7
Madras - - -	1163.9	673.0
Berar - - -	1083.1	183.0
British India as a whole -	1032.3	466.0

The writer in *Nature* continues: "Another method which is independent of statistics of population is to consider the proportion which small-pox deaths bear to the total deaths from all causes in two periods, one with 'less' and the other with 'more' vaccination. If an 'epidemic' is now arbitrarily defined as one in which the deaths from small-pox form 5 or more per cent. of the deaths from all causes, we get the following data here put in tabular form:—

	1868-1887.	1888-1907.
	No. of Epidemics.	No. of Epidemics.
Central Provinces -	5	0
Punjab -	7	0
British India as a whole	9	0 "

Major James states that, prior to 1886, the attack rate was always greater among natives of India than among the European troops serving in that country. After this date the position was reversed. The explanation given by the author is that since 1885 vaccination and successful re-vaccination have been less carefully attended to among Europeans than among native troops.

Dr. Arthur Newsholme, now Medical Adviser to the Local Government Board for England and Wales, in his "Elements of Vital Statistics,"^a states that small-pox reached its highest point in 1798 (two years before the date of Jenner's "Inquiry") when $18\frac{1}{2}$ deaths out of every 100 total deaths were caused by that disease. Dr. John M'Vail states that in the pre-vaccination period small-pox was nine times as fatal as measles and seven and a half times as fatal as whooping-cough. Dr. Newsholme adds—"Under vaccination it has sunk to an insignificant position when compared with these diseases." This observation is borne out by the fact that out of 520,456 deaths registered in England and Wales in the year 1908, only 12 were due to small-pox, whereas measles was responsible for 8,011 deaths, and whooping-cough for 9,851 deaths.

Dr. M'Vail, in his "Lane Lectures" on "The Prevention of Infectious Diseases,"^b delivered at Cooper Medical College, San Francisco, in August, 1906, having spoken of the prevalence of small-pox in pre-vaccination times, proceeds:—"But the evidence that it was ordinarily an affection of childhood is no less convincing. In Geneva, in 1580 to 1760, there were 25,349 deaths from small-pox at all ages, and of these 21,078 were under five years old, and 961 per 1,000 were under ten years old. In Edinburgh, in 1764-83, the proportion under ten years old was 993 per 1,000. In the Chester epidemic of 1774 there were 202 deaths, all among children under ten years old. In 36,755 deaths at all ages in Kilmarnock, Edinburgh, Manchester, Warrington, Chester, Geneva,

^a Third Edition. 1899. London: Swan Sonnenschein & Co. Page 211.
London: Macmillan & Co. 1907. Page 211.

and The Hague, 17,252 were under two years of age. The facts, therefore, are indisputable—(1) that small-pox was a very prevalent and fatal disease, and (2) that it was a disease of childhood.”

Small-pox was a disease of childhood because of its intensely active infectiousness. It spared adults because of the abiding immunity conferred upon an individual by an attack survived in childhood of either natural or—in the days of inoculation—acquired small-pox.

Statistics embodied in the “Sixth Report of the Royal Commission on Vaccination” the Commission sat from 1889 to 1896—and in the “Final Report,” published in August, 1896, show a steady decline of small-pox mortality in infants and children at all ages under five and at ages between five and ten, interrupted no doubt by the great epidemic of 1870-1871. Commenting on this remarkable circumstance, Dr. Newsholme observes a—“The changes in the age-incidence of small-pox are so great as entirely to preclude any possibility of referring them to errors of registration or fluctuations due to chance. The most natural and probable explanation of them is that vaccination confers an immunity from small-pox in the earlier years of life, which, however, is less complete and permanent than the immunity conferred by an attack of small-pox, thus explaining the fact that the higher ages have not shared in the improvement, and at the same time indicating the necessity for re-vaccination at the age of puberty.”

Referring to the fact that in recent years there is a distinct tendency for small-pox to become again, to a greater extent, a disease of early life, Dr. Newsholme considers that at least a feasible explanation is to be found in the neglect of vaccination in large communities of late years, especially since 1890.

Enough has been advanced to prove that small-pox has diminished in prevalence and fatality. We have now to ask—Why has it so declined?

* *The Elements of Vital Statistics*. Third Edition. 1899. Page 218

The opponents of vaccination are ready with the answer: "Sanitation." Far be it from me to belittle the marvellous influence for good of sanitation—using the term in its widest and best sense—as a preventive and a controlling agency in the management of the acute infections—small-pox included. But what I do maintain is that in relation to this most infectious of infectious diseases we have an absolute and tried preventive—namely, vaccination and re-vaccination. This is more than can be said of any other of the acute infections in the present state of our knowledge.

Table III. shows at a glance the effect of modern sanitation on the mortality, and indirectly, therefore, on the prevalence of certain acute infections. Why is small-pox absent from this Table? Because in recent years the death-rates from this disease per 100,000 persons living would be represented not by whole numbers, but by decimals of microscopic proportions.^a As Dr. Newsholme remarks:—"No scrap of evidence is forthcoming which shows any connection between bad drainage or other sanitary defects and small-pox. In this respect it is like measles and whooping-cough, which remain as prevalent as formerly, despite the immense strides which have been made in sanitary improvements. In denying any connection between insanitation and small-pox, an exception must be made in respect of overcrowding. Like other infectious diseases, small-pox is most easily spread when the most frequent opportunities exist for personal intercourse. It is, therefore, most often met with, and greater in amount, in busy centres of population than in scattered rural districts. The most noteworthy feature of the last forty years has been the rapidly-increasing urbanisation of the population, and the immense extension of travelling conveniences. And yet, notwithstanding the increase of these adverse influences, the small-pox death-rate has rapidly declined."

The Jennerian conception that a primary vaccination

^a Loc. cit.

TABLE III.—*Showing Death-rates per 100,000 Persons Living, 1881 to 1908.*

YEARS	England and Wales	Scotland	Ireland	YEARS	England and Wales	Scotland	Ireland
MEASLES				SCARLET FEVER			
1881-1885	41	36	18	1881-1885	44	35	27
1886-1890	47	41	20	1886-1890	24	22	14
1891-1895	41	51	17	1891-1895	18	20	10
1896-1900	42	43	18	1896-1900	13	17	9
1901-1905	33	32	16	1901-1905	13	9	4
1906	27	31	9	1906	10	5	3
1907	36	24	13	1907	9	5	2
1908	23	—	20	1908	8	—	2
DIPHTHERIA				WHOOPING-COUGH			
1881-1885	16	21	6	1881-1885	46	60	30
1886-1890	17	22	8	1886-1890	44	61	28
1891-1895	25	22	7	1891-1895	40	52	26
1896-1900	27	16	8	1896-1900	36	51	27
1901-1905	20	15	8	1901-1905	30	49	24
1906	18	17	8	1906	24	29	21
1907	16	14	6	1907	29	52	18
1908	16	—	9	1908	28	—	22
ENTERIC FEVER				PULMONARY TUBERCULOSIS			
1881-1885	22	27	16	1881-1885	183	211	208
1886-1890	18	19	17	1886-1890	164	189	212
1891-1895	17	18	17	1891-1895	146	174	214
1896-1900	17	16	21	1896-1900	132	165	213
1901-1905	11	11	13	1901-1905	122	145	215
1906	9	9	9	1906	115	138	204
1907	7	8	8	1907	114	135	202
1908	7	—	8	1908	112	—	195

conferred, or was capable of conferring, a lifelong immunity against small-pox is untenable and is no longer maintained by vital statisticians and sanitarians. On this point public opinion has ripened long since in Germany, and borne fruit in the Compulsory Re-Vaccination Law of April, 1874. But in the United Kingdom not only has the Legislature taken no steps in this direction, but the trend of legislation has been in the direction of loosing the bands of primary vaccination. In England and Wales the "conscientious objector" has already had his wilful way, for it appears from the "Annual Report of the Medical Officer of the English Local Government Board for the Year 1907-8" that the operation of vaccination had been successfully performed on 686,992—or only 73.4 per cent.—of the 935,338 children whose births were returned by the Vaccination Officers in 1906, the latest year for which particulars are at this date available. I have seen unvaccinated infants struck down by small-pox, and I shudder to think of the miserable fate which awaits the unhappy children of the "conscientious objectors" of England and Wales should small-pox unfortunately be imported into the United Kingdom from overseas.

The history of small-pox and its prevention in Germany within the last three-quarters of a century furnishes a convincing object-lesson of the efficacy of re-vaccination as a preventive measure. Compulsory re-vaccination was introduced into the Württemberg army in 1833, the Prussian army in 1834, the Hanoverian army in 1837, the army of Baden in 1840, and the Bavarian army in 1843.

Taking the Prussian army as a type, we find that on and after June 16, 1834, every recruit was obliged to be either vaccinated or re-vaccinated. During the three previous years—1831 to 1833—the mortality from small-pox in the army amounted on the average to 72.2 per 100,000, compared with 34.1 per 100,000 of the civil population. That is to say, the disease was more than twice as fatal to the troops than it was to the civil popu-

lation. In 1834, the mortality in the army fell to 28.1, but was 49.1 among the civilians. In 1835, the army figure was 3.7, that of the civil population was 27.1. And so on up to the pandemic outburst of 1870-72, when we meet with the following figures—the averages for those three years of pestilence:—

Army	-	-	21.2 per 100,000
Civil population	-	-	174.4 per 100,000

Prussia was badly protected by vaccination at the time of the Franco-German War, and we are, therefore, not surprised to find that, whereas only 459 deaths occurred among the troops (mobilised and immobilised), small-pox slew 59,839 persons in Prussia in 1871, and 5,508 in Berlin alone, the population of which city was then 826,341, or much less than the number of men in the German army.

It was these hard facts which led to the enactment of the stringent German Vaccination Law of April 8, 1874. In accordance with its provisions, young children must be vaccinated before the end of the calendar year following the year of birth; and all school-children must be re-vaccinated in their twelfth year. Obedience to this law is enforced by fine or imprisonment.

The result of the operation of this law has been that in Germany no difficulty attends the provision of hospital accommodation for isolated small-pox patients. This is abundantly proved in a report to the Local Government Board for England and Wales by Dr. R. Bruce Low on the arrangements in Germany for the isolation of small-pox cases (1903).

In the opinion of Dr. Wutzdorff, Director of the Imperial Health Department, and other medical authorities, with whom Dr. Low conferred, "the immunity from small-pox displayed by people residing in and around a general hospital, when that disease was being isolated there, is entirely due to the almost complete antecedent protection of the population by compulsory vaccination and re-vaccination."

Professor Minkowski, the Chief Physician of the Augusta Hospital, Cologne, expressed the opinion that "the German immunity from small-pox was due to general compulsory vaccination and re-vaccination; it could not, he asserted, be attributed to the German method of isolation, which, he pointed out, would completely fail if it were carried out among a population which had not received the practically complete protection conferred by statutory vaccination and re-vaccination."

Professor von Noorden, Chief Medical Officer to the Frankfurt General Hospital, and his Senior Assistant "had complete confidence in the vaccination and re-vaccination already undergone by the general population to prevent the spread of small-pox to patients when cases of this disease were admitted to the general hospital."

Dr. Grandhomme, who is Medical Officer of Health for the City of Frankfurt-am-Main, "placed statutory vaccination and re-vaccination in the forefront of all current protective measures; without these he would have little hope of checking the onset of an epidemic."

At an interview with Professor Weintraud, Chief Physician to the General Hospital at Wiesbaden, and with his senior assistant, Dr. Wolff, both physicians assured Dr. Low that "they placed their chief trust in statutory vaccination and re-vaccination to prevent the spread of small-pox, and that it would be impossible to isolate such cases on the site of the Wiesbaden General Hospital had not the population undergone vaccination and re-vaccination."

Professor Weintraud, in emphasising his perfect confidence in statutory vaccination and re-vaccination as a prophylactic against small-pox, mentioned the following incident in illustration to Dr. Bruce Low. While he (Dr. Weintraud) was resident medical officer some years ago at the Berlin Charité Hospital, two small-pox cases were admitted for isolation. For some time no opportunity had occurred for demonstrating to the students the clinical characters of small-pox. Accordingly, he was

deputed by the Chief Physician to instruct in the diagnosis of the disease some 260 students, in detachments, by the bedside of these two patients. As vaccination and re-vaccination are compulsory in Germany, it was not thought necessary to make inquiries as to this matter in regard of each student. But at the end of twelve days two students out of the 260 fell ill with the initial symptoms of small-pox, and each passed through an attack of the disease. Both were Italians who had not been re-vaccinated.

It is noteworthy that Mainz is the only town in Germany visited by Dr. Low where provision for the isolation of small-pox has been made on a separate site.

The arrangements for the hospital treatment of small-pox in the German cities are fully set out in Dr. Bruce Low's Report. They are illustrated in a series of maps showing the hospitals and the small-pox pavilions therein in the various chief towns. [Through the kindness of Dr. T. Percy Kirkpatrick I was enabled to show several of these maps upon the screen at the Birkenhead Congress.]

Now compare with all this, the stringent rules which the Local Government Board for England and Wales have felt constrained to lay down in regard to hospital provision for small-pox. The following is an extract from an official Memorandum "On the provision of Isolation Hospital accommodation by Local Authorities (1902):—*Hospitals for Small-pox.*—In view of the frequently demonstrated liability of small-pox hospitals to disseminate that disease to neighbouring communities, and in order to lessen the risk of such occurrence, the Board require the following conditions to be complied with in the case of small-pox hospitals provided by means of loans sanctioned by them:—

"1. The site must not have within a quarter of a mile of it either a hospital, whether for infectious diseases or not, or a workhouse, asylum, or any similar establishment, or a population of as many as 200 persons. 2. The site must not have within half a mile of it a population

of as many as 600 persons, whether in one or more institutions, or in dwellinghouses. 3. Even where the above conditions are fulfilled, a hospital must not be used at one and the same time for the reception of cases of small-pox and of any other class of disease."

In his article on "Vaccination as a Branch of Preventive Medicine" in Allbutt & Rolleston's "System of Medicine,"^a Dr. John C. M'Vail gives a diagram showing the mortality from small-pox per 100,000 inhabitants in Prussia and in Austria respectively during the years 1816 to 1902. In Austria, vaccination is not compulsory, but since 1891 the administrative authorities have been most active in promoting vaccination, with the result that small-pox has diminished to a great extent. In small-pox statistics, therefore, the contrast is not only between Prussia and Austria, but between Austria before and since vaccination has been the subject of so much administrative effort.

In Fasciculus XXV. of the New Sydenham Society's "Atlas of Illustrations of Clinical Medicine, Surgery and Pathology" (London: H. K. Lewis, 1906), Plates O. to S. demonstrate in a striking way the influence of vaccination on the course of small-pox. Plate O. shows two boys, both aged thirteen years. One had been vaccinated in infancy, the other had never been vaccinated. Both boys were infected from the same source on the same day. The unvaccinated lad is seen to have developed variola and is in the fully pustular stage. The vaccinated lad has varioloid, or "modified small-pox," and has only one or two spots, which have aborted and have already scabbed. Plate P. shows two sisters infected with small-pox on the same day from the same source. The elder, aged twenty-one, had been vaccinated in infancy, and is seen to have a mild attack of varioloid. The younger, aged fifteen, unvaccinated, shows a confluent pustular rash on her face, which is already swollen and deformed.

^a Vol. II. Part I. Page 792.

Plates Q., R., and S. illustrate the influence of vaccination performed during the incubation stage of small-pox. In Plate Q. two girls are shown suffering from small-pox with the same date of onset. One of the girls had been vaccinated at the time of infection, twelve days before the onset of the disease. On her left arm are seen the healthy marks of her recent vaccination. She has varioloid with scanty skin lesions which have already completely scabbed. Plate R. is also of concurrent vaccinia and small-pox. The protection appears to be less than was obtained in the case illustrated in Plate Q., and so we are not surprised to learn that vaccination was performed only nine days before the onset of small-pox. This instructive photograph was obtained from Dr. William Hanna, D.P.H., Assistant Medical Officer of Health for the Port of Liverpool.

Plate S. demonstrates that the mildness of an attack of small-pox which follows a vaccination during the incubation of that disease is not due merely to a natural family insusceptibility. A boy, aged fourteen years, unvaccinated, sickened with small-pox on April 14. He was removed to hospital on April 18, where he had a severe confluent attack. The father consented to his wife and three children being vaccinated, stating that personally he would not be vaccinated, but would be a "test," to "see if there was anything in it." Ten days later his daughter, aged three years, developed a small-pox eruption. She had less than one hundred spots, and never appeared ill. No other person in the house suffered from small-pox except the father, who had, indeed, been vaccinated in infancy. His confluent eruption appeared fourteen days after the son had been removed to hospital. The photograph of the father and daughter was taken on the twelfth day of the father's eruption.

The plates in this Fasciculus of the New Sydenham Society's "Atlas" are, with the exception of Dr. Hanna's, prepared from photographs taken by Dr. Allan

Warner, D.P.H., late Resident Medical Officer to the Isolation Hospital, Leicester, and now Assistant Medical Officer of Health for that Borough.

It has been objected to vaccination that the resulting "cowpox," or vaccine disease, may cause death. This is, no doubt, true, and in 1908 there were included in the death-registers of England and Wales 13 deaths under the head of "cowpox and other effects of vaccination." But the estimated population of England and Wales in the middle of the year 1908 amounted to 35,348,780 persons, and the total number of deaths was 520,456. Also, in 1907—the latest year for which the Vaccination Officers' Returns are available up to the present date—651,040 infants were vaccinated in England and Wales. The deaths per 100,000 primary vaccinations were, therefore, as nearly as possible, *two*!

Contrast this with Lord Macaulay's description of "that disease, over which science has since achieved a succession of glorious and beneficent victories." Writing of Queen Mary's death from small-pox in 1694, he states that it was then the most terrible of all the ministers of death. "The small-pox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover." Such was, or is, the disease from which the immortal Edward Jenner delivered the nations. Should the preventive treatment by vaccination fall into abeyance, there is every reason to fear that small-pox would again stalk as a pestilence through the land.

In this paper I claim to have proved to the satisfaction of the impartial and open-minded that small-pox *has* declined in prevalence and fatality, and that to an extent out of all proportion to a like change in the case of every other member of the class of the acute infections. This

very fact would point to some determining cause for so satisfactory a change over and beyond the ordinary forces of Preventive Medicine which are denoted by the comprehensive term "Sanitation."

The history of small-pox in the nineteenth century points strongly and clearly to vaccination as being the great modifying agency which changed the disease from one of childhood to one of adult life. Childhood was rendered immune to small-pox by vaccination in infancy. But in the years of rapid growth, from the first dentition onward to puberty, possibly, nay probably, in consequence of the rapid development of body-cells what may be called "*plus* anabolism" immunity grows less and less, so that re-vaccination becomes an imperative necessity if so powerful an infection as that of small-pox is to be kept at bay.

Again, the striking contrast presented by Great Britain and Ireland to the German Empire in regard to the isolation treatment of small-pox in hospitals offers eloquent testimony to the efficacy of compulsory re-vaccination as a lifelong preventive of the disease in most cases.

Lastly, we have the spectacle of pestilence-stricken Russia, in which vaccination is practically non-existent; of Austria, in which voluntary vaccination has advanced by leaps and bounds since 1891, bringing to her people release from the same pestilence; and of Germany, in which vaccination and re-vaccination before the age of twelve years are compulsory, with the result that her home population is all but free from the disease.

Surely such evidence is conclusive, and grave indeed is the responsibility incurred by those who do not accept it, but labour to throw discredit upon the surest means of grappling with one of the most loathsome and fatal of—

"The thousand natural shocks
"That flesh is heir to."

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Male Diseases in General Practice. By EDRED M. CORNER, F.R.C.S., Surgeon to the Children's Hospital, Great Ormond Street, &c. Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton. London. 1910.

THE author calls this an introduction to andrology, and in the preface he argues strongly in favour of the foundation of a Science of Andrology corresponding to that of Gynæcology. A special plea for the foundation of this science is that men are without doubt carriers and transmitters, often unconsciously, of venereal infections into their own homes. However, he warns against the self-styled specialist in either andrology or gynæcology who has had no special training in general surgery, which should always precede the taking up of any branch of special surgery, as the latter without the former is prone to be superficial and unsound.

In the first chapter, on Diseases of the Tunica Vaginalis, the author describes a case in which Dr. L. S. Dudgeon reported a thickening of the membrane to be due to a typical squamous-celled carcinoma, but he offers no explanation of its occurrence. In Chapter III. he describes the Wandering or Movable Testicle. This mobility is normal in the young, but varies greatly in degree. When, however, the movement is great, such as when the testicles disappear into the inguinal canals, some abnormal conformation is present, specially if the child is over four or five. He relates cases to show that this increased mobility may be the cause of inguinal hernias, from the action they have in keeping the inguinal canals distended. As the child advances in years, the gland may develop normally and become more fully descended. Its development may be interfered with by repeated slight injuries, and it may even

atrophy, or torsion and even strangulation may occur. The fourth chapter deals very fully with the Imperfectly Descended Testicle, and the author suggests that the undoubtedly increased liability to malignant disease is due to the congenital deficiency in the power of the gland to develop and not to its position, which is really in all probability secondary to this congenital deficiency. The age of selection for operation in these cases of imperfectly descended testicle he gives as from five to ten years. Orchidopexy is only applicable in mild cases, orchidectomy is justifiable only under special pathological conditions—*i.e.*, torsion, severe neuralgia, extreme atrophy, &c.—except in older cases—*i.e.*, after the time of the possible period of testicular activity and spermatogenesis has passed, after the age of twenty-three. Replacement in the abdomen is indicated in the majority of cases before puberty.

According to statistics the right testicle is lower than the left in 41.5 per cent. in African adults; the left lower on the same level in 58.5 per cent. In infants in England, 39 per cent. are lower on the right and 41 per cent. on the left, and 20 per cent. are on the same level; and in adults, 10 per cent. are lower on the right, 80 per cent. lower on the left, and 10 per cent. on the same level. He, therefore, thinks that the fact that the left testicle usually hangs lower is an acquired change, due to the almost invariable custom of dressing on the left side. The constant position of a varicocele is due partly to the same cause and partly to a congenital factor—*i.e.*, the larger number of unobliterated Wolffian veins on the left side. Imperfect descent is always accompanied by imperfect development, as it is due to lack of developmental capital or capacity, whereas misplacement is due to some accidental, and often mechanical, mischance, but the gland is capable of full development. To diagnose torsion of the testicle is tantamount to advising operation. Injections of fibrolysin are suggested for the treatment of the nodules found in chronic epididymitis; it is said that the site of injection becomes painful, but with a large experience of these injections in various affections we have never noticed this trouble.

In the chapter on the Treatment of Varicocele there are

statistics showing that after operation the testicle is harder in 90 per cent., and is altered in size in at least 76 per cent. These figures show the frequency with which changes, almost certainly indicating injury to the gland, follow operation. On the other hand, only 4 per cent. complain that they are definitely worse, and these are cases operated on for entrance into the services who had never had the least discomfort before operation. The author lays great stress on the foolish attitude adopted by the services towards candidates with varicocele who apply for admission. If patients complain of definite local symptoms, operation will improve or cure the great majority, but it cannot cure the neurasthenic symptoms frequently seen in these cases, though it may affect them indirectly.

In Chapter XIII. cases are quoted which prove that gonococci live and flourish in the genital tract for periods of four, five, and eight years after the original infection without any signs and without the knowledge of the patient; they also illustrate that the place in the genital tract where this ambushade is most often present is the prostate. The best method of demonstrating their presence is the passage of a full-sized bougie, which is followed in a couple of days by a discharge containing gonococci. The best chance of cure is by repeated passage of these bougies and filling the bladder with lotion which flushes out any sinuses in the prostate when the patient micturates; ordinary injections in these cases are useless.

Lectures on Cosmetic Treatment. By DR. EDMUND SAALFELD, of Berlin. Translated by J. F. HALLS DALBY, Physician to the St. Marylebone Dispensary. With an Introduction and Notes by P. S. ABRAHAM, M.D., F.R.C.S.I. London: Rebman, Ltd. 1910.

THIS is a small but complete and useful book which should appeal to every medical practitioner. As Dr. Abraham states, in a short introduction, it is written on strictly scientific and professional lines, and gives information that is difficult to find elsewhere in a compact and comprehensive form. The

translator has done his work admirably, and has rendered his German text into clear and readable English. The author deals in eight chapters with practically every variety of blemish that calls for cosmetic treatment, and gives a detailed account of his own methods. Prescriptions are numerous, and care is taken to show how each one can be modified to suit any individual case. When excellence depends more on attention to detail than on the enunciation of principles it is difficult to do more than briefly indicate the purpose and scope of a book, and in consequence we must content ourselves by strongly commending this brochure to all who are called upon to deal with any form of minor ailment affecting the skin or its appendages.

Duodenal Ulceration. By B. G. A. MOYNIHAN, M.S. (Lond.), F.R.C.S. Leeds. Illustrated. London: W. B. Saunders Co. 1910. Pp. 379.

WHO of us ten years ago would have believed, had we been told it, that within such a short space of time duodenal ulcer would have emerged from the category of rare diseases and taken its place as one of frequent, nay of common, occurrence? Its recognition was then well nigh impossible, it is now diagnosticated with confidence in the large majority of cases. The subject is one of such vast importance that the appearance of a volume devoted solely to a consideration of its various aspects is not by any means uncalled for. The distinguished author of the work before us has done more to assist us in making our diagnosis of ulceration of the duodenum both comparatively easy and accurate than any other member of the profession, while his persistent advocacy of the surgical treatment of this condition as the most reliable, and, indeed, in the majority of cases the only treatment worth considering, deserves the commendation of all.

The first part of the work is devoted to the subject itself, while the appendix, which comprises no less than 129 pages (over one-third of the volume), is given over to a record of the author's cases operated upon up to the end of 1908 (nine years of work, 186 cases).

Any one acquainted with the writings and work of Mr. Moynihan (and who in the profession is not ?) will recognise the merit of the volume before us when we state that it is done in the author's most thorough and lucid style. It opens with a short sketch on the history of the subject, then we find a chapter devoted to ulceration of the duodenum in cases of burns or scalds, a condition which hitherto we have been inclined to look upon as a coincidence until we read the record of convincing cases therein published. Chapters III., IV. and V. are devoted to "Uræmic Ulcer of the Duodenum," "Tuberculous Ulceration of the Duodenum," and "Melæna Neonatorum and Duodenal Ulcer." In the succeeding 150 pages the reader will find everything he requires to know about the subject of chronic duodenal ulceration—its symptoms, diagnosis, complications, prognosis, and treatment and pathology. It would be a work of supererogation for us to say more than indicate the nature of the work under review. We heartily commend its careful study to physician, surgeon, and general practitioner alike.

Transactions of the American Surgical Association. Edited by RICHARD H. HARTE, M.D., Recorder of the Association. Vol. XXVII. Printed for the Association for sale by Wm. J. Dornan, Philadelphia. 1909. Pp. 634.

INCLUDING the President's Address, the volume before us consists of forty-two papers on various surgical subjects of interest and importance.

Most of these papers have appeared from time to time in *The Annals of Surgery* and in *The American Journal of Surgery, Gynæcology and Obstetrics*. A study of the papers will give the reader some conception of the amount of surgical work done in America, as well as the advances American surgeons are making year by year. A perusal of the various papers in this volume will well repay the reader. Perhaps the most interesting papers in the Transactions are those on "Œsophago-gastrostomy after Intrathoracic Resection of the Œsophagus," by Willy Meyer, M.D., of New York ; "The Operative Treatment of Heart Wounds," by Charles H. Peck, M.D., and

those by Friedrich, Halstea, and Freeman on thoracic surgery generally, and especially on the surgery of pulmonary tuberculosis. There are about 150 pages included under what may be termed the section devoted to thoracic surgery which, taken together, form a fine treatise upon the subject. The concluding paper in the volume is one which will interest physicians—viz., “Surgical Intervention in Intestinal Hæmorrhage during Typhoid Fever,” by Richard H. Harte, M.D., of Philadelphia.

The Collected Papers of Joseph, Baron Lister; Member of the Order of Merit; Fellow and sometime President of the Royal Society; Knight Grand Cross of the Danish Order of the Danebrog; Knight of the Prussian Ordre pour le Mérite; Associé Étranger de l'Institut de France, &c. In Two Volumes. Oxford: At the Clarendon Press. 1909.

THESE two volumes contain all the papers and addresses which Lord Lister himself considered to possess permanent interest and importance. The papers are classified under four general heads according as they deal with physiology, pathology and bacteriology, the antiseptic system or general surgery. To these are added some general addresses and lectures which possess an interest almost equal to that of the papers which come under the four general heads.

Chronological order is followed in the arrangement of the several papers in each part.

The Committee which prepared the various papers for the press consisted of Sir Hector C. Cameron, Sir W. Watson Cheyne, Bart., C.B., F.R.S.; Rickman J. Godlee, M.S.; C. J. Martin, M.D., F.R.S., and Dawson Williams, M.D., F.R.C.P.

This Committee prefaced the papers and addresses by a brief introduction which will show the reader the position and state of surgery at the time when Lord Lister began his great work, as well as the principle which guided him throughout.

It is quite unnecessary for us to refer further to the papers

and addresses themselves. The two volumes form a fitting memorial to the work of one of the greatest men that ever lived.

The work is handsomely got up, the typography is everything that could be desired, and the illustrations are excellent.

The publishers are none the less to be congratulated than the Committee for the production of this work.

Elements of Pharmacy, Materia Medica, and Therapeutics. By SIR WILLIAM WHITLA, M.A., M.D., LL.D.; Professor of Materia Medica and Therapeutics, Queen's University, Belfast. Ninth Edition. London: Baillière, Tindall & Cox. 1910. Cr. 8vo. Pp. xiv + 672.

A BOOK which has reached the ninth edition, and of which thirty-two thousand copies have been printed, needs little in the way of criticism or even analysis at a reviewer's hands.

For this ninth edition the author claims that it is practically a new work. Much of it has been re-written, and all of it has been carefully revised and brought up to date. This is particularly the case in the section of the volume which is devoted to Non-Official Remedies, and which occupies about 130 pages. The only fault one can find with this portion of the work is that the author has shown perhaps too much consideration to new-fangled remedies, with outlandish chemical names, or still more barbarous ones coined by people with a smattering of knowledge of Latin and a profound ignorance of Greek. "Calcium-beta-naphthol-alpha-monosulphonate" and "Hydrochloride of Benzoyl-tetramethyldiamino-ethyl-dimethyl-carbinol" are what school-boys used to call "jaw-breakers." "Eucasin" and "Eulactol" are interesting philological compounds. We tremble to think what will become of the "well of English pure and undefiled" if this sort of thing goes on. It will be rather muddled.

To our mind two of the most useful parts of the book are the section on pharmacy, which is thoroughly prac-

tical, and that on the administration of medicines, which should be studied by every medical practitioner. But all the book is good, and we congratulate Sir William Whitla on the success which has crowned his literary efforts with a triple crown, for this volume is intended to be a companion volume to the author's "Dictionary of Treatment" and to his "Practice of Medicine."

The newly-constituted Queen's University of Belfast is fortunate in having as Professor of Materia Medica and Therapeutics a man who has shed such lustre on the profession of Medicine in Ireland in general and on the Belfast School of Medicine in particular by his sterling contributions to medical literature.

Esquisses Cliniques de Physiothérapie : Traitement rationnel des Maladies chroniques. Par le Docteur J. A. RIVIÈRE, Chevalier de la Légion d'Honneur ; Officier d'Académie, &c. Paris : Bouchy et C^{ie}.

DR. RIVIÈRE defines physiotherapy as a curative method of treatment, consisting in the medicinal stimulation of the normal vitality, with the object of producing normal cell action and the regular elimination of dead products from the living organism. This laudable object is to be attained, according to the learned author, by the means of electricity, warmth, light, hydrotherapy, kinésés, and vapour baths. By the use of these agents we are assured that we secure the utmost beneficial results in our vital phenomena, digestion and nutrition, circulation and respiration, secretion, elimination, and calorification. And it is interesting to know that Dr. Rivière has "wrought linked armour for his soul, ere it went forth to war." He writes :—" Je n'hésite pas à affirmer que, lorsqu'on n'est pas ainsi entièrement armé, de pied en cap, pour le combat par les agents thérapeutiques, on ne possède qu'une action curative insuffisante." And then the worthy doctor sympathises with his poorer brethren, and then explains their want of success.—"Impossible, avec les maigres ressources dont disposent la plupart des praticiens, même spécialisés, de réaliser les promesses de la physiothérapie,

c'est-à-dire de guérir les maladies chroniques." We were forcibly reminded by the book of the play of the "Irish Tutor on his Last Legs." Mr. O'Callaghan, who for the time being assumed the title of Doctor of Medicine, and his purse being empty, practised mesmerism. To the father of a patient, an only son, he was eloquent on the extraordinary value of Mesmer's system of cure, withal he was not wholly dependent on any one system, for he carried "flame," and was prepared to perform phlebotomy in the neck should the case call for it, and to demonstrate his preparedness for operation ordered a stable bucket to be brought into the room. "Esquisses Cliniques" has some seventy-seven pages of illustrations of the apparatus used by the author, which are almost as numerous as the stock of Volpone. The book deserves to be classed with the free literature of the American proprietary medicine vendor, and with it is properly relegated to the dust-bin.

The Practical Medical Series. Under the General Editorial charge of GUSTAVS P. HEAD, M.D.; Professor of Laryngology and Rhinology, Chicago Post-Graduate Medical School. Volume VII. *Pediatrics.* Edited by ISAAC A. ABT, M.D.; Assistant Professor of Medicine, Rush Medical College; with the Collaboration of MAY MICHAEL, M.D. *Orthopædic Surgery.* Edited by JOHN RIDLON, A.M., M.D.; Professor of Orthopædic Surgery, North Western University Medical School; with Collaboration of A. STEINDER, M.D. Series, 1909. Chicago: The Year Book Publishers.

VOLUME VII. of the "Practical Medical Series," one of the ten volumes on the year's progress in Medicine and Surgery, is divided into two parts—"Pediatrics," edited by Abt, and "Orthopædic Surgery," edited by Ridlon. The first 180 pages deal with the medical aspect of children's diseases: the last 50 pages are devoted to the surgical.

The book is arranged in sections, which makes it con-

venient for reference. The opening ones are the most generally interesting, and discuss diseases of the new-born, hygiene, and dietetics. The subject of fevers occupies a good deal of space. We find reports of instructive epidemics, and also of cases with unusual complications. Here, as in the rest of the volume, a fair proportion of papers discusses new methods of treatment and recent pathological researches. There are several articles which will specially appeal to the Medical Inspectors of Schools. Two of particular interest are on the "Chronological versus the anatomic and physiologic Age of Children." On the whole, it is perhaps unnecessary to refer to papers individually; but we may say that the extracts are for the most part short, and give the essential details of work published during the year 1908 in American, English, and Continental journals. This brevity allows of a great number and variety of subjects to be dealt with in a limited space. When required for the sake of clearness a few illustrations are appended.

The surgical portion, which is not so full, is mostly taken up with affections of joints, notably the ankle joint. Two favourable reports on tuberculin treatment in joint tuberculosis are criticised by the Editor as being too sanguine, and not in accordance with his experience. Operative procedures receive their share of attention.

In conclusion, the wise selection of articles, and the concise method of summarising them, render Volume VII. of the 1909 Series a valuable addition to our knowledge of children's diseases, and as such we have pleasure in recommending it to our readers.

Otitic Cerebellar Abscess. By HEINRICH NEUMANN, Privat Docent, University of Vienna. Translated by RICHARD LAKE, F.R.C.S. London: H. K. Lewis. 1909. Pp. 156.

THE first seventy-two pages are devoted to a consideration of the condition of cerebellar abscess arising from suppurative otitis media, while the remaining eighty-four pages are devoted to a report of illustrative cases. The entire subject is fully

yet concisely treated. The statistics, the ætiology and pathological anatomy, the symptomatology, the diagnosis, differential diagnosis, prognosis and treatment are all described in order. The translation is most readable, and the profession owes a debt of gratitude to the translator for placing such an exceedingly interesting and valuable brochure within the reach of perusal of those unable to read the original. The book is one which should be interesting as well as instructive to the aural specialist and the general surgeon alike.

The Pathology of the Living, and other Essays. By B. G. A. MOYNIHAN, M.S. (Lond.); F.R.C.S., Leeds. Philadelphia and London: W. B. Saunders Company. 1910. Pp. 260.

MR. MOYNIHAN has acted wisely in yielding to the request of his friends to publish this collection of essays. Many will have previously read them in the various medical journals in which they were originally printed, but will be glad to have them thus conveniently bound together and indexed. The essays will also repay a second reading.

The essayist is emphatic in the expression of his opinions, and in places exhibits a Quixotic tendency to tilt at *post mortem* observations. That valuable additions to our knowledge of pathology have been made by the opportunities afforded by operative surgery, it would be futile to deny; but it seems idle to balance the evidence to be obtained from operative surgery against the evidence to be obtained from *post mortem* inquiry. Any proved fact in our knowledge of the effects produced by disease is a stone in the Temple of Medicine, and it is of little moment as to whence the stone was quarried. The statement—"No recognition has been accorded to the truth that in almost every particular the value of evidence obtained from the living outweighs that which is disclosed upon the *post mortem* table"—is a glaring *petitio principii*; it also recalls to

mind the laconic query of Pilate. In operative work morbid changes can frequently be observed in an early stage, but it is necessary to remember that due care for the interests of the patient prevent that prolonged and minute examination which can be exercised *post mortem* when time is not limited. It is but natural that at times an observation made with good faith in the theatre may need revising in the dead-house.

It is interesting to note that Moynihan has found Cammidge's test of great help in many cases; but a few statistics recording in detail his experiences in this matter would be of especial value.

The importance of anamnesis is strongly urged, but presumably Mr. Moynihan is no stranger to the difficulty of getting patients to tell the whole truth, for on page 56 he writes:—"I have never yet found gall-stones in the gall-bladder when performing other abdominal operations, without being able subsequently to elicit the most positive evidence of their frequent endeavours to attract attention and to reveal their presence. Either the patient was to blame for the evidence being only obtained subsequently, or it was a case of "*non semper tendit Apollo*."

The secondary effects of gall-stones is clearly described and the diagnostic value of "the staple" temperature chart in cholecystitis is emphasised.

One of the best chapters in the book is that on the mimicry of malignant disease, and after reading it few will disagree with the suggestion that in some of the recorded cures of carcinoma after colectomy an error in diagnosis was made. It might also serve as an example of the difficulty of living pathology and the need for *post mortem* revision.

A misprint occurs on page 51.

This book is an earnest endeavour to advance the science of surgery, and will be read with interest and profit by the physician, the operating surgeon, and the general practitioner.

PART III.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF PATHOLOGY.

President—ARTHUR H. BENSON, M.B., F.R.C.S.I.
Sectional Secretary—W. BOXWELL, M.B., F.R.C.P.I.

Friday, March 4, 1910.

THE PRESIDENT in the Chair.

Piroplasmosis and Experimental Piroplasmosis.

PROFESSOR METTAM read a paper so entitled. [It was published in the number of this Journal for April, 1910, Vol. CXXIX., No. 460, third series, page 251.]

THE PRESIDENT expressed the thanks of the Section to Professor Mettam for his paper, which showed the great progress which had been made in pathology during the last few years.

PROFESSOR THOMPSON asked if piroplasmosis was the cause of all cases of red-water in cattle in this country?

PROFESSOR METTAM said it was, as far as he was aware. There was a form in Scotland in which the piroplasm had not been found, but wherever he had examined in piroplasmosis in England or Ireland he had never failed to find it.

PROFESSOR O'SULLIVAN said it would be very interesting if Professor Mettam would tell them something more of the differences between the Irish piroplasmosis and the bigeminum.

DR. O'FARRELL asked if Professor Mettam had made a blood-count. He believed it was usual to find a decrease in the

number of white corpuscles and a relative increase in the lymphocytes.

DR. PARSONS said it would appear that red-water fever in Ireland was much less infectious than in South Africa and Texas. Was this, he inquired, due to a difference in the tick or in the parasite?

PROFESSOR METTAM replied that hæmoglobinuria was very common throughout the whole of Ireland. On one farm, where new cattle were introduced from Scotland, 48 out of 59 got red-water, and 8 or 9 of the number died. He was convinced that there was more than one form of piroplasmosis in Ireland. He had seen cases from County Clare, where there was *Piroplasma bigeminum*, but in other parts—from Cork to Antrim—cases were due to a much smaller parasite—one which was bigeminate, but in the most part circular or spherical. This was the one which he had failed to reproduce, and further experiments were necessary to show whether it was inoculable or not. In "Dum-dum" fever he did not think the infecting organism was a piroplasm, but one more nearly related to the flagellates. As to leucocytosis, he thought himself there was, if anything, a leucopenia, and apparently nothing like phagocytosis occurred. The white corpuscles certainly did not attack the parasites. The term *Piroplasma bigeminum* was used more generally than specifically. It was the parasite which caused Texas fever, tick fever in Australia, and South African red-water so-called. But quite a host of piroplasmata had been demonstrated in Assam, China, Japan, and in Transcaucasia, where they were of the bacillary nature, probably resembling somewhat the "*P. mutans*." He was convinced that the parasite met with most commonly in Ireland, and called bigeminum, was quite a special one, and he hoped to elucidate the matter within the next few months. The disease was not very fatal in Ireland, probably in not more than 5 per cent. of the cases. A carcass would not be passed in the condition, as the spleen was very large, and the dresser would take it to be anthrax, and get rid of the carcass.

DR. WIGHAM asked if it would be difficult to communicate the Irish disease by the action of ticks. He would like to know if experiments had been done in filtered blood to find if the virus was able to pass through it.

PROFESSOR METTAM said the virus was not passed through the filter. For some time past they had been breeding ticks, but when ready to be put on the cattle they appeared to commit suicide! In cases of canine piroplasmosis, many dogs had been saved by tripan blue. Animals injected with it became blue, but the colour passed off in a short time.

DR. O'FARRELL asked if there was any difference in the virulence in the bites of the embryonic and adult tick.

PROFESSOR METTAM said the history of the transmission of the disease varied with the tick. Some inoculated the disease at one stage, some at another, but there was no difference as regards the virulence.

PROFESSOR THOMPSON asked if the disease was associated with any particular kind of land.

PROFESSOR METTAM replied that red-water was always associated with pastures where there was cover for ticks, such as hedges and old grass. The land could be cleared by firing.

DR. STOKES asked if the ordinary treatment for red-murrain in the country was useless.

PROFESSOR METTAM replied that he believed the animals would in some cases get better equally rapidly if there was no treatment.

Anæmic Infarct of the Lung.

DR. PARSONS having exhibited and described the specimen,

PROFESSOR O'SULLIVAN said the specimen showed the typical appearance of brown induration, which was not, in his experience, a common thing. Besides the induration there were a number of infarcts scattered through the lung of the ordinary hæmorrhagic kind, but even in those they found a central white patch quite distinct from the rest of the infarction. One showed the way in which decolourising took place. Another structure presented different characters. On section it showed a small, almost white, mass, which was not very distinctly encapsuled. On examination he noticed a blood vessel which had not been completely cut through. Microscopic sections showed that the whole tissue of the lung was necrosed, and that the capillary vessels were somewhat swollen and contorted and filled with something which could not very well be made out with the stain. All the contorted capillaries took on the fibrin stain, and the substance in the alveoli consisted of distinct threads of fibrin. His reasons for thinking it

was an anæmic infarction were, first, its apparent age; an infarct decolourised so completely would be an old infarct; it would have around it a considerable quantity of fibrous tissue forming a definite capsule; secondly, the appearance of the capillaries was different from that found in hæmorrhagic infarction: it was the sort of appearance described as hyaline thrombi in the capillary vessels; thirdly, there was no appearance of blood in the capillary spaces; pigment was found chiefly in the cells, but the lung was pigmented all through.

PROFESSOR THOMPSON asked if any micro-organism had been discovered.

DR. KIRKPATRICK inquired as to the state of the heart.

PROFESSOR O'SULLIVAN said it was an extreme case of mitral stenosis. He was not able to find any micro-organisms, but when tissue died the organisms died with it.

Hypernephroma.

MR. WILLIAM TAYLOR exhibited a specimen of hypernephroma removed from a man fifty years of age. He first saw him in September last, when he got a history of an attack of pneumonia in October or November of 1908. During the interval he had been expectorating quantities of pus every day, with occasional periods of two or three days without expectoration, the expectoration following a pain in his side. He (the patient) had also noticed a swelling in the upper part of his abdomen on the right side. When stripped, a tumour was obvious, extending below the navel to his right iliac fossa. It was hard, but tender on deep pressure, and moved with respiration. He thought the patient had an abscess in the liver, which was being evacuated through the lung, or a hypophrenic abscess displacing the liver. When the patient went into hospital, he examined him with Dr. Craig, and they agreed it was probably in the right lobe of the liver. He determined to open the abdomen through the right rectus muscle, and on doing so found the liver practically normal. The right lobe was smaller than normal, but it was pushed up, and with it the diaphragm. Then they saw the enormous mass in the kidney. It was plain that if it was the kidney, and communicating with his chest, attempt to remove it would be fatal, so he turned the patient round, and evacuated a considerable quantity of pus with some blood and necrotic tissue.

For a couple of days the patient expectorated blood, but this gradually ceased. There was no trace of pus in the sputum after the first ten days. The patient went out and attended to his affairs before they attempted removal of the tumour. Careful inquiry elicited the fact that eighteen years before he passed blood without any apparent cause. During the subsequent three years he had on five or six occasions noticed blood in his urine, but it passed off. About a month ago he was again admitted to hospital in fairly good condition, but discharging foetid pus freely from the wound. He re-opened the abdomen and removed the growth, which weighed six pounds. He hoped the patient would soon be fit to leave hospital.

DR. BOXWELL said sections showed that it was an epithelial growth. Some parts were solid epithelium and some tubular. It was exceedingly vascular, and seemed to be a typical hypernephroma. Sections of the kidney showed nothing remarkable. Any changes were simply due to the pressure of the tumour and atrophy resulting from it.

DR. O'FARRELL asked if Dr. Boxwell considered such hypernephroma to be adrenal rests or not. They were looked on as a form of endothelioma. He had seen a case which had no necrotic centre; the whole kidney was removed, and the tumour was found to extend in the pelvis right down to the lower pole. Hypernephroma was likely to form secondary deposits in the bone.

PROFESSOR METTAM said the sections looked like adrenal tissue. It was not uncommon to find the condition in cattle frequently incorporated in the liver with the structure of the adrenal type, and resembling the zone of the cortex of the adrenal.

DR. BOXWELL replied that the tumour was encapsulated, but it was hard to say with certainty whether it should be looked on as an adrenal rest. He had failed to find evidence of fat in the cells; and some parts of the tumour had a delusive resemblance to kidney tissue.

MR. TAYLOR, in reply, said an X-ray photograph had been taken by Dr. Hayes before the operation, but no information was forthcoming, except the presence of an enormous dense mass in the right flank.

Abscess of the Heart.

DR. BOXWELL showed a specimen of abscess of the heart. The patient from whom the heart was removed was a male,

aged forty-five. He had been found leaning against the railings of the hospital, and was admitted in a fainting condition. A hurried superficial examination revealed nothing but an exceedingly fast and weak heart's action. Subsequently, some left basic pneumonia of a week's standing was discovered. His temperature was 100° F., and his pulse anything between 180 and 200. He had a bad alcoholic history, but denied syphilis. Large hypodermic doses of strychnin and digitalin to steady the heart had no effect whatever. He became rapidly weaker, and died next day. At the *post-mortem* an abscess was found in the posterior wall of the left ventricle, discharging pus into the cavity. Section showed the pus to be coming from a large hæmorrhagic and necrotic area occupying the upper third of the left ventricular wall, and extending into the septum. Microscopically one could see what were apparently small abscesses surrounded by necrotic muscular tissue, areas of recent cell infiltration, and a great deal of old standing fibrosis. It occurred to him that there was probably a gumma of the heart wall in the first instance, which had become secondarily infected. A large cirrhotic and nutmeg liver was also found, and a large spleen closely adherent to the diaphragm. There was a small basic pneumonia of the left lung. In the pus taken directly from the abscess a few diplococci and one or two bacilli were found. At least two species of bacilli and various cocci grew in cultures, but one could not be certain how much was due to *post-mortem* contamination. He had failed to find any organisms in the tissue stained by Gram.

DR. KIRKPATRICK asked if there was any evidence of syphilis in the patient other than the supposed gumma.

PROFESSOR O'SULLIVAN said from the sections shown the condition was almost certainly syphilitic.

DR. BOXWELL, in reply, said he did not find any other evidence of syphilis. The arteries were not materially diseased.

Charcot-Leyden Crystals.

DR. PARSONS exhibited a specimen of sputum from an asthmatic case, in which Charcot-Leyden crystals were present in very large numbers; they were so abundant in some parts that they looked like pure cultures.

PROFESSOR THOMPSON suggested that an attempt should be made to isolate the crystals so as to get to know more about them; very little was known about their chemical composition.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, June 18, 1910.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended June 18, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 18.9 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, June 18, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks	TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks
	May 28	June 4	June 11	June 18			May 28	June 4	June 11	June 18	
22 Town Districts	21.1	18.0	17.8	18.9	19.0	Lisburn -	13.6	4.5	27.3	13.6	14.8
Armagh -	—	20.6	27.5	6.9	13.8	Londonderry	24.0	13.2	9.6	10.8	14.4
Ballymena	14.4	9.6	9.6	19.2	13.2	Lurgan -	4.4	4.4	22.1	35.4	16.6
Belfast -	23.5	22.1	19.7	24.4	22.4	Newry -	8.4	16.8	4.2	16.8	11.6
Clonmel -	25.6	20.5	25.6	10.3	20.5	Newtown- ards	11.4	5.7	22.9	28.6	17.2
Cork -	26.7	16.4	19.9	15.1	19.5	Portadown -	25.8	10.3	15.5	15.5	16.8
Drogheda -	12.3	20.4	12.3	16.3	15.3	Queenstown	13.2	26.4	13.2	6.6	14.9
Dublin -	19.5	15.7	16.4	17.1	17.2	Sligo -	4.8	4.8	48.0	9.6	16.8
(Reg. Area)						Tralee -	21.1	5.3	10.6	21.1	14.5
Dundalk -	35.9	12.0	—	12.0	15.0	Waterford -	21.4	31.2	29.2	15.6	24.3
Galway -	11.7	19.4	15.5	7.8	13.6	Wexford -	14.0	4.7	4.7	14.0	9.4
Kilkenny -	29.5	39.3	9.8	—	19.6						
Limerick -	24.6	17.8	16.4	20.5	19.8						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, June 18, 1910, were equal to an annual rate of 3.1 per 1,000, the rates varying from 0.0 in seventeen of the districts to 7.9 in Belfast, the 183 deaths from all causes for that district including 4 from whooping-cough, 4 from diarrhoeal diseases, 2 from diphtheria, and 49 from measles. Two deaths from measles are included in the 9 deaths from all causes registered in Londonderry, and of the 4 deaths from all causes registered in Drogheda one is from whooping-cough.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 402,928, that of the City being 310,298, Rathmines 37,047, Pembroke 28,948, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, June 18, 1910, amounted to 272—132 boys and 140 girls; and the deaths to 140—67 males and 73 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 18.1 in every 1,000 of the population. Omitting the deaths (numbering 8) of persons admitted into public institutions from localities outside the Area, the rate was 17.1 per 1,000. During the twenty-four weeks ending with Saturday, June 18, the death-rate averaged 23.2, and was 3.3 below the mean rate for the corresponding portions of the ten years 1900-1909.

The total deaths (amounting to 132) included one death from measles, 2 deaths from whooping-cough, 2 deaths from enteric fever (of which one was from a locality outside the Area), and one death of an infant from epidemic diarrhoea. There were also registered 2 deaths from enteritis and one death from *gastro-enteritis* of children under 5 years of age. In each of the three preceding weeks deaths from measles had been 0, 0, and one; deaths from diarrhoeal diseases had been 2, one, and 3; deaths from enteric fever had been one, 0, and 0; and deaths

from whooping-cough had been 0, 2, and one. There was one death from influenza, no death from this disease having been registered in the three preceding weeks.

The deaths from pneumonia (all forms) included 4 deaths from lobar pneumonia and 3 deaths from *pneumonia* (not defined).

The deaths (37) from all forms of tuberculous disease included 22 from tubercular phthisis (*phthisis*), 7 from tubercular meningitis, one death from tubercular peritonitis, and 7 deaths from other forms of the disease. Deaths from all forms of tuberculous disease in the three preceding weeks had been 25, 32, and 22 respectively.

There were 5 deaths from carcinoma, one death from sarcoma, and one death from cancer, malignant disease (undefined).

Three deaths of prematurely born infants were recorded.

Diseases of the heart and blood-vessels caused 25 deaths, diseases of the brain and nervous system accounted for 14 deaths, 2 being of infants from *convulsions* at the ages of 13 months and under one year respectively, and of 11 deaths from diseases of the respiratory system bronchitis caused 9 deaths.

Of 7 deaths from violence, 6 were attributed to accident or negligence, and one was by suicide. Of the former, 3 were by drowning, and one was that of a child aged 2 years by scalds.

In five instances the cause of death was "uncertified," there having been no medical attendant during the last illness; these cases included the deaths of 3 infants under one year of age and the death of one person aged 62 years.

Twenty-five of the persons whose deaths were registered during the week were under 5 years of age (13 being infants under one year, of whom 5 were under one month old), and 41 were aged 60 years and upwards, including 21 persons aged 70 and upwards, of whom 3 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles

A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended June 18, 1910, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis, <i>Phthisis</i>	Total
City of Dublin	May 28	-	•	•	13	-	-	6	-	-	4	20	-	•	-	23	66
	June 4	-	•	•	8	-	-	13	-	-	12	4	-	•	-	38	71
	June 11	-	•	•	7	-	-	10	-	3	4	-	-	•	-	24	53
	June 18	-	•	•	17	3	-	9	-	1	15	1	•	•	-	20	73
Rathmines and Rathgar Urban District	May 28	-	•	•	-	-	-	1	-	-	-	1	-	•	•	•	2
	June 4	-	•	•	-	-	-	1	-	-	-	-	-	•	•	•	1
	June 11	-	•	•	-	-	-	1	-	-	-	1	-	•	•	•	26
	June 18	-	•	•	1	-	-	-	-	-	-	-	1	•	•	•	2
Pembroke Urban District	May 28	-	-	1	1	-	-	4	-	-	-	-	-	-	-	•	6
	June 4	-	-	1	1	-	-	1	-	-	1	1	-	-	-	•	4
	June 11	-	-	1	1	-	-	-	-	-	-	-	-	-	-	•	-
	June 18	-	-	1	1	-	-	-	-	-	-	-	-	5	-	•	7
Blackrock Urban District	May 28	-	•	•	1	-	-	-	-	-	-	-	-	•	-	•	1
	June 4	-	•	•	-	-	-	2	-	-	-	-	-	•	-	•	2
	June 11	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	June 18	-	•	•	1	-	-	-	-	-	-	-	-	•	-	•	1
Kingstown Urban District	May 28	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	June 4	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	June 11	-	•	•	-	-	-	-	-	-	-	-	-	•	•	2	2
	June 18	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
City of Belfast	May 28	-	•	•	14	-	-	5	1	-	1	6	-	•	•	31	58
	June 4	-	•	•	8	-	-	5	-	-	1	9	1	•	•	46	70
	June 11	-	•	•	9	-	-	3	-	1	2	1	-	•	•	25	41
	June 18	-	•	•	2	-	-	2	-	-	-	1	-	•	•	14	19

^a Continued Fever.

^b Not including one case of dysentery, as returned.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended June 18, 1910, one case of measles was admitted to hospital, and 5 cases remained under treatment at its close.

Twenty-five cases of scarlet fever were admitted to hospital, 14 were discharged, there was one death, and 74 cases remained under treatment at the close of the week. This number is exclusive of 23 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the three preceding weeks the cases in hospital had been 84, 76, and 64 respectively.

Three cases of typhus were admitted to hospital during the week, and remained under treatment at its close.

Seven cases of diphtheria were admitted to hospital, 12 were discharged, and 50 patients remained under treatment at the close of the week. The cases in hospital at the close of the three preceding weeks had numbered 44, 53, and 55 respectively.

Six cases of enteric fever were admitted to hospital during the week, 8 were discharged, and 31 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 9 cases of pneumonia were admitted to hospital, 8 were discharged, there was one death, and 33 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, June 18, in 76 large English towns, including London (in which the rate was 10.6), was equal to an average annual death-rate of 11.1 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 13.9 per 1,000, the rate for Glasgow being 13.5, and for Edinburgh 10.4.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended June 18. From this report it appears that of a total of 28 cases notified, 12 were of scarlet fever, 7 of phthisis, 6 of diphtheria, 2 of erysipelas, and one of enteric fever.

Among the 279 cases of infectious diseases in hospital at the close of the week were 128 cases of scarlet fever, 29 of measles, 55 of phthisis, 8 of whooping-cough, 33 of diphtheria, 5 of erysipelas, 17 of chicken-pox, and 3 of enteric fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of June, 1910.

Mean Height of Barometer,	-	-	-	29.881 inches.
Maximal Height of Barometer (15th, at 9 a.m.),				30.327 „
Minimal Height of Barometer (27th, at 9 p.m.),				29.446 „
Mean Dry-bulb Temperature,	-	-	-	56.3°.
Mean Wet-bulb Temperature,	-	-	-	53.9°.
Mean Dew-point Temperature,	-	-	-	51.7°.
Mean Elastic Force (Tension) of Aqueous Vapour				.386 inch.
Mean Humidity,	-	-	-	85.3 per cent.
Highest Temperature in Shade (on 20th),	-			73.6°.
Lowest Temperature in Shade (on 1st),	-			42.9°.
Lowest Temperature on Grass (Radiation) (1st),				39.2°.
Mean Amount of Cloud,	-	-	-	65.0 per cent.
Rainfall (on 19 days),	-	-	-	6.211 inches.
Greatest Daily Rainfall (on 5th),	-	-	-	1.259 „
General Directions of Wind,	-	-	-	N.W., N.E.

Remarks.

June, 1910, established a record for rainfall in the Dublin district. At Fitzwilliam Square the measurement was 6.211 inches, or more than three times the average (1.990 inches). No such rainfall had been registered in June within the past half-century, the nearest approach to it being 5.058 inches in 1878. In the following year also, 4.046 inches were recorded in the wintry June of 1879. It will be apparent from the returns given below that the excessive rainfall was almost confined to the City of Dublin and its Southern Suburbs, the precipitation lessening in a remarkable way to the northward and westward (inland). The apparent causes of the downpours were the frequent thunderstorms of the month and a prevalence of easterly sea breezes along the coast line of the counties Dublin and Wicklow. On the 5th upwards of an inch of rain fell at all the metropolitan stations, as well as at Greystones, where 1.310 inches were measured. On the 7th violent thunderstorms occurred during the afternoon and at night. Electrical disturbances continued through the two following days, but on the 10th the weather improved and summer

warmth set in. From the 13th to the 20th an anticyclone prevailed, and was accompanied by fine, bright, and moderately warm weather. On the afternoon of the 20th a second thunder-storm-period set in, lasting to the 24th. Upwards of two inches of rain fell during this time. The closing days of the month were characterised by the prevalence of cold and squally N.W. winds, clouds, and drenching showers. On the 29th the rainfall was .925 inch. The broken weather was connected with an atmospheric depression, in which the barometer persistently remained below 29.4 inches between Scotland and the south of Norway.

In Dublin the arithmetical mean temperature (57.6°) was below the average (57.9°) by 0.3° ; the mean dry bulb readings at 9 a.m. and 9 p.m. were 56.3° . In the forty-six years ending with 1910, June was coldest in 1909 (M. T. = 55.2°), 1907 (M. T. = 55.4°), 1882 (M. T. = 55.8°), and 1879 ("the cold year") (M. T. = 55.9°). It was warmest in 1887 (M. T. = 62.3°), 1896 (M. T. = 61.4°), and 1899 (M. T. = 61.3°). June, 1909, established a record for coldness.

The mean height of the barometer was 29.881 inches, or 0.036 inch below the corrected average value for June—namely, 29.917 inches. The mercury rose to 30.327 inches at 9 a.m. of the 15th, and fell to 29.446 inches at 9 p.m. of the 27th. The observed range of atmospheric pressure was, therefore, 0.881 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 56.3° , or 4.8° above the corresponding M.T. for May, 1910. Using the formula, $\text{Mean Temp.} = \text{Min.} + (\text{Max.} - \text{Min.} \times .465)$, the value was 57.2° or 0.2° below the average mean temperature for June, calculated in the same way, in the thirty-five years, 1871–1905 inclusive, (57.4). The arithmetical mean of the maximal and minimal readings was 57.6° , compared with a thirty-five years' average of 57.9° . On the 20th the thermometer in the screen rose to 73.6° —wind, E.; on the 1st the temperature fell to 42.9° —wind, S. The minimum on the grass was 39.2° on the 1st.

The rainfall amounted to 6.211 inches on 19 days. The average rainfall for June in the thirty-five years, 1871–1905, inclusive, was 1.990 inches, and the average number of rain-days was 15. The rainfall, therefore, was more than three times the average, while the rain-days were 4 above the average. In 1878 the rainfall in June was very large—5.058 inches on 19 days; in

1879 also, 4.046 inches fell on 24 days. On the other hand, in 1889, only .100 inch was measured on 6 days. In 1887 the rainfall was only .252 inch, distributed over 5 days. In 1909, 1.963 inches fell on 9 days. June, 1910, established an undisputed record for excessive rainfall in Dublin.

High winds were noted on only 4 days. A solar halo was seen on the 3rd, 14th, 18th, and 23rd. There was a fog on the 8th. Thunderstorms, often of exceptional severity, occurred on the 7th, 8th, 9th, 20th, 21st, 22nd, and 24th.

The rainfall in Dublin during the six months ending June 30th amounted to 18.632 inches on 111 days, compared with 12.061 inches on 84 days in 1909, 11.729 inches on 107 days in 1908, 12.336 inches on 108 days in 1907, 12.641 inches on 109 days in 1906, 10.201 inches on 92 days in 1905, 12.817 inches on 102 days in 1904, 15.054 inches on 108 days in 1903, 12.344 inches on 98 days in 1902, 9.352 inches on 80 days in 1901, only 6.741 inches on 67 days in 1887, and a thirty-five years' average of 12.030 inches on 96 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William H. Clark, B.A., reports that the mean height of the barometer was 29.881 inches, the highest reading observed being 30.324 inches at 9 p.m. of the 15th, the lowest, 29.450 inches at 9 p.m. of the 27th. The arithmetical mean temperature was 57.1° , the mean dry-bulb reading at 9 a.m. and 9 p.m. being 56.8° . The thermometer rose to 72.0° in the shade on the 10th, and fell to 42.6° on the 1st. The grass minimum was 35.7° on the 1st. Rain fell on 16 days to the amount of 5.915 inches, 1.270 inches being measured on the 5th. The number of hours of bright sunshine registered by the Campbell-Stokes sunshine recorder was 139.9, giving a daily average of 4.7 hours. The corresponding figures for 1905 were 217.6 hours and 7.3 hours; 1906, 210.3 hours and 7.0 hours; 1907, 129.4 hours and 4.3 hours; 1908, 181.4 hours and 6 hours; and 1909, 158.7 hours and 5.3 hours. The mean earth temperature read at 9 a.m. was 58.5° at a depth of 1 foot below the surface of the ground, 54.4° at a depth of 4 feet.

At Ardgillan, Balbriggan, Co. Dublin, Captain Edward Taylor, D.L., measured 4.62 inches of rain on 17 days, the heaviest fall

in 24 hours being 1.33 inches on the 5th. The rainfall was 2.55 inches above the average, while the rain-days were 4 in excess. Temperature in the screen rose to 69.1° on the 10th, having fallen to 39.0° on the 1st. Since January 1, 1910, the rainfall at Ardgillan amounts to 16.30 inches, or 4.04 inches above the average, and the rain-days number 103, or 11 in excess.

At Cheeverstown, Clondalkin, Co. Dublin, Miss Violet C. Kirkpatrick recorded 5.80 inches of rain on 19 days. The greatest fall in 24 hours at Cheeverstown was 1.39 inches on the 5th.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was 5.535 inches on 16 days, compared with 3.350 inches on 8 days in 1909, 1.710 inches on 9 days in 1908, 3.470 inches on 23 days in 1907, .870 inch on 7 days in 1906, 1.500 inches on 10 days in 1905, 2.280 inches on 10 days in 1904, 1.785 inches on 11 days in 1903, and 3.341 inches on 16 days in 1902. The heaviest rainfalls in 24 hours were 1.310 inches on the 5th and .650 inch on the 2nd.

At Clonsilla, Greystones, Co. Wicklow, Dr. W. Stewart Ross measured 4.31 inches of rain on 18 days—1.26 inches being recorded on the 7th. The mean temperature was 54.7° , the extremes being—highest, 77° , on the 11th; lowest, 40° , on the 1st. The mean maximal temperature was 60.4° ; the mean minimal temperature was 48.9° .

Mr. Richard M. Barrington, LL.B., registered 5.625 inches on 15 days at Fassaroe, Bray, Co. Wicklow. The greatest fall in 24 hours was 1.800 inches on the 5th.

Dr. Launcelot T. Burra reports that at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, rain fell on 17 days to the amount of 4.625 inches, the maximal fall in 24 hours being 1.50 inches on the 5th. The mean temperature for the month was 55.7° , the extremes being—highest, 69.8° on the 9th and 20th; lowest, 38.6° on the 1st. The mean dry-bulb temperature was 57.4° at 9 a.m., 54.4° at 9 p.m.

Dr. Arthur S. Goff returns the rainfall at Lynton, Dundrum, Co. Dublin, at 6.97 inches on 21 days, compared with 2.62 inches on 10 days in 1909. The greatest daily fall was 1.70 inches on the 5th. The mean shade temperature was 58.0° . The thermometric range was from 72° on the 20th and 21st to 44° on the 1st.

Mrs. Olive F. Symes supplies the following record of the rainfall at Druid Lodge, Killiney:—Rain fell on 16 days to the amount of 5.44 inches, the maximal fall in 24 hours being 1.81 inches on

the 5th. The average rainfall for June at Cloneevin, Killiney, in the 24 years, 1885-1908, was 1.771 inches on 13.2 days.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, was 3.985 inches on 17 days, compared with 2.232 inches on 9 days in 1909, 1.335 inches on 15 days in 1908, and 2.872 inches on 23 days in 1907. The heaviest fall in 24 hours was 1.25 inches on the 5th. The mean shade temperature was 56.2° , the extremes being—highest, 71° on the 20th; lowest, 38.5° on the 1st. The M.T. was 58.4° in 1905, 57.4° in 1906, 54.2° in 1907, 55.9° in 1908, and 53.8° in 1909.

Dr. C. Joynt returns the rainfall at 21 Leeson Park, Dublin, at 6.405 inches on 17 days, 1.350 inches having been recorded on the 5th, and exactly one inch on the 29th.

The Rev. Arthur Wilson, M.A., reports a rainfall of 2.79 inches on 20 days at the Rectory, Dunmanway, Co. Cork. On the 5th .58 inch was measured. The first week and the period from the 17th to the 25th were very unsettled. It was very fine and warm from the 8th to the 16th. Thunder and lightning occurred on the 7th and 21st. The rainfall for the completed six months of 1910 amounts to 26.48 inches on 125 days.

Mr. W. Miller returns the rainfall at Cork at 3.93 inches on 16 days—this amount exceeding the average for June by 1.53 inches. The greatest rainfall in 24 hours was .88 inch on the 22nd. Thunder and lightning occurred on the 7th and 20th. Thunder was heard on the 22nd and 25th. The rainfall of the first six months of 1910 in Cork was 17.94 inches on 113 days, or 0.59 inch and 20 days over the average.

At Derreen, Kenmare, Co. Kerry, Mr. W. Holbrow recorded a rainfall of 2.91 inches on 18 days, the heaviest fall in 24 hours being .51 inch on the 24th. Thunder occurred on the 6th and 25th. The latter end of the month was cold and showery.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell in June on 19 days to the total amount of 5.147 inches, 1.215 inch being registered on the 5th. The duration of bright sunshine was 143.0 hours, the most in one day being 12.5 hours on the 17th.

PERISCOPE.

INFECTION IN UTERO.

DR. FREDERICK W. WARREN, Rock Lodge, Navan, Co. Meath, sends the following note :—Mrs. X. was within a short time of her confinement, when her brother-in-law, a youth of seventeen years, who lived with her, developed measles. He was isolated, and every precaution was taken to prevent spread of the infection. As soon as he was sufficiently recovered the patient was sent away, and his room was disinfected. Seven days afterwards Mrs. X. was delivered of a daughter. On the third day after confinement both mother and child developed a typical measles rash. Both patients made a perfect recovery.

SURGERY AT THE BRUSSELS EXHIBITION.

THE exhibit of British surgical instruments at Brussels compares in the most gratifying manner with anything shown by other nations. It is that of only one firm; but it is sufficiently representative, and attracts a good deal of attention. The German surgical exhibit contains, no doubt, ingenious and practical instruments. What makes the evident superiority of the British installation is, however, the high finish and the comparative lightness of our appliances. They admit of more delicate manipulation, a merit of the greatest importance for surgery. The German operating tables are neither so clever nor so perfectly cleanly as our own; and, speaking generally, there is not, in the German section, so fine a variety of surgeons' tools. It is, perhaps, unlikely that special foreign publicity will be given to this fine British exhibit, since the wider use of any successful implement depends far less upon advertisement, even at home, than upon its being seen in use or recommended by one surgeon to another. But international intercourse in the profession does occur; and at the Brussels Exhibition Great Britain is so worthily represented that our section attracts cultured visitors of every sort. Members of the profession who have friends abroad should certainly urge them to see the exhibit of Messrs. Down Bros. This firm is showing a choice and very large selection of its well-known manufactures in surgical instruments, hospital furniture,

and sterilising apparatus. The collection consists exclusively of new ideas, or modifications and improvements of existing models, carried out by the firm for or under the direction of leading British surgeons. The instruments are all London-made in the firm's own factory by skilled British artificers, and so may be said to be thoroughly representative. It is an installation that affords an indication of the progress made in recent years by British ingenuity and handicraft, in an industry, which, for humanity's sake alone, must always call forth the highest efforts, and in which firms of standing recognise a first duty to guard from any deteriorating influence—such as the temptation to debase quality and finish in the attempt to distance rivals by a spurious cheapness. It is not practicable here to do more than outline the exhibit by mentioning a few salient features. There are sets of operating instruments in cases, consisting of knives forged entirely by hand from solid steel, and other instruments with metal handles, &c., all constructed so as to be sterilised by boiling. Such are the sets designed for His Majesty's army and navy, &c. There are also plates and screws with instruments appropriate to their application, for directly screwing together fractured bones. Lighting for examination and working purposes is provided in many new and convenient designs in electric and other lamps on standards and brackets; the latter admitting of many convenient adjustments. There are also compactly fitted bags for surgeons, physicians, nurses, &c., designed for all occasions and emergencies. The "First-Aid," as designed for His late Majesty King Edward VII., intended principally for motorists, consists of a neatly contrived flat box, which will go easily under the seat of a motor car. Within, in partitions, are arranged in the order of their use requisites for stopping bleeding, cleansing, dressing and bandaging wounds, and a brandy flask. This useful companion is equally serviceable for accidents at race meetings, in large crowds, or in the home; and clearly worded instructions in heavy type for each compartment explain the use of the contents, so that no doubt or difficulty need be feared in an emergency. In the furniture section are shown operating tables, manufactured under the firm's patents, with mechanism for rendering them either capable of travelling smoothly on their castors, or firmly fixed at one spot, and for accommodating the height and position of the table and patient to the requirements of the various operations. This section contains also steel and glass

cabinets, travelling and fixed electric light standards and pendants with arrangements for raising, lowering and varying the position of the light as required; and many other useful contrivances for ward and theatre use.

PALPATION OF ARTERIES BY THE FINGER-NAIL.

IN determining the condition of the arteries it is usual to palpate the arteries with the pulp of the finger. According to Dr. Wortheim Salomonson much more definite indications are obtained by employing the finger nail. For this purpose the nail should be glided either across or along the artery. By means of the nerve filaments in the nail matrix the pulsations are easily felt, and when these cease by means of compression the artery itself is well defined, and by careful palpation in this way the thickness, irregularities, and sinuosities of the arterial walls can be well appreciated. The author explains the greater delicacy of manipulation in this way by the fact that at a given moment the sensations obtained are very limited instead of being diffused over a large surface, as in the case of palpation with the finger pulp. Moreover, the resistance of the vessel, which is felt as the finger-nail passes over its border, is instantaneous, and in consequence the perception is much more definite and precise. All the superficial arteries can be palpated in this way, and, according to this author, it is especially useful in the palpation of the posterior tibial, and of the arteries of the foot in cases of intermittent claudication. On the other hand, large vessels, such as the carotid and femoral arteries, do not rest upon a sufficiently resisting bed for this method of examination.—*The Hospital*, July 9, 1910.

NEW PREPARATIONS AND SCIENTIFIC INVENTIONS.

Digalen.

IN the *Münchener med. Wochenschrift*, 1904, No. 33, M. Cloetta drew attention to this preparation of digitalis under the name of "Digitoxinum solubile." It is now well known as a valuable substitute for infusion of digitalis. The Hoffmann-La Roche Chemical Works Company, of Basle, Grenzach (Baden), and London, have sent us a bottle of "digalen"—the name by which the preparation is now known—and a box of digalen ampoules.

Digalen contains only the amorphous form of digitoxin, which in contrast to the highly toxic crystalline form is easily soluble in water. This solubility is the chief factor in ensuring rapid and prompt action on the one hand, and in preventing cumulation on the other, as it favours rapid absorption and rapid elimination. Cloetta and Fischer recovered one-tenth of the amount injected into a rabbit four hours later from the urine (*Arch. f. experim. Pathol. & Pharmak.*, Vol. 54, p. 307). Whereas the crystalline form will be precipitated from its alcoholic solution by the action of the watery tissue-juices and remain an uncertain deposit of crude digitoxin in the tissues beyond the range of any further outside influence, digalen will be wholly absorbed and as easily excreted, thus allowing of complete control and adjustment to the necessities of the case. A unique property of digalen is that it can be injected intravenously with perfect safety, and a prompt and powerful physiological response is produced in from two to five minutes. The dose of digalen (*Digitoxinum solubile*, Cloetta) is from 8 to 15 minims—the latter quantity containing $\frac{1}{250}$ gr. of Cloetta's digitoxin. The ampoules are intended for intramuscular or intra-venous injection. Each ampoule contains 1 cc. (16.9 minims) of a sterile solution—this being the normal dose. In an urgent case such an injection may be repeated after half an hour or an hour. The Firm dispense these ampoules in neatly packed boxes of six, with full directions for use.

Thiocol.

CREOSOTE medication has for some time proved to be of the utmost value in tuberculosis and diseases of the air passages; but this service has unfortunately been negatived by unpleasant by-effects. "Thiocol" is a compound of guaiacol (a derivative of creosote), which is absolutely free of all unpleasant by-effects, and moreover, allows of giving a larger amount of guaiacol than any other preparation. On account of its solubility, freedom from odour, and not unpleasant taste, combined with a powerful antimicrobial action, "Thiocol" may confidently be recommended as the best preparation for tuberculosis and diseases of the lungs. "Thiocol" Powder and "Thiocol" Tablets are prepared by The Hoffmann-La Roche Chemical Works, Ltd., 7 and 8 Idol Lane, London, E.C.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. VIII.—*The Therapeutic Qualities of Calcium Permanganate.* By G. ARBOUR STEPHENS, M.D.

DURING the last few years the calcium salts have played a prominent part in therapeutics, and one in which I have not only been interested, but with which I have to some extent been associated.

In 1906 I drew attention in the *British Medical Journal* to the value of calcium chloride in chilblains, and by so doing quite unconsciously resuscitated a treatment that had been suggested by Sir Almroth Wright some nine years previous.

This contribution had been read before the Swansea Medical Society, where it was condemned on account of its novelty; a "novelty," however, that very quickly touched the susceptibilities of Sir Almroth Wright, who wrote me on the morning of publication with regard to the "remarkable coincidence."

The universal use of calcium chloride for chilblains, however, dates back only to the time when my article appeared.

Following up my investigations with the calcium salts, I was able to introduce, a few months later, the now

universally-used drug, calcium iodide, which has been proved to be so effectual in ulcers of a chronic, syphilitic, or even diabetic nature.

It was on account of the limitations of calcium iodide that I was induced to test the virtues of the drug which forms the subject of this paper, with the hope that it might prove of value in the treatment of ulcers a stage more malignant than the chronic ones—namely, rodent. Calcium permanganate occurs in purplish-red deliquescent crystals, which are readily soluble in water. These crystals differ from those of the potassium salt in the fact that when handled they readily attack the skin by reason of their deliquescence, and unless washed off immediately may produce nasty sores.

For external use this salt in solution does not seem to possess any great amount of superiority over potassium permanganate, although it is said that for mouth and nose lotions it is not quite so unpleasant. The person, however, who is pleased with such small differences of a palatal nature must be very easily satisfied.

Any antiseptic differences that may exist between the calcium and potassium salts are certainly not very obvious, and not worth while being considered.

Before making any remarks with regard to the internal use of this drug, I would draw attention to the interesting fact that both calcium and manganese have been placed in the category of “hormones.”

Hormones are described as internal secretions which are necessary for the complete production of a glandular secretion, and prominent amongst the hormones are the products of the suprarenal and thyroid glands.

For the complete transformation of trypsinogen into trypsin the enzyme of the intestinal mucous membrane—to wit, entero-kinase—is found to be necessary, but its place can be taken by a calcium salt.

This enzymic function of calcium is a very important one, and no doubt accounts for the great part played by it in the general metabolism.

Whilst waiting for opportunities to investigate the qualities of this drug with regard to rodent ulcer, my attention was drawn to the report of the Cancer Research Committee, wherein were given the results of certain experiments of Drs. Bashford and Cramer, which seemed to show that cancer cells introduced into mice resulted in an increase of physiologically active hydrochloric acid during digestion.

Such hyperactivity is the preliminary stage of inflammation, and it occurred to me that gastritis might yield to the drug that would benefit patients with rodent ulcer.

With this in view I decided to try calcium permanganate in patients suffering from gastric inflammation (gastric catarrh, gastritis or gastric ulcer). Patients suffering from gastric catarrh or gastritis are very numerous, and I had not long to wait for opportunities to put the drug to the test.

The first patient that presented herself was a young lady, aged twenty-four, who gave the history of a gastric ulcer twelve months before, and which had disappeared under rest and treatment.

She was very anæmic, and gave the usual symptoms of chronic or subacute gastritis—tenderness on pressure over the epigastric region, pain after food, some vomiting, and a marked distaste for food.

I ordered her a quarter of a grain of calcium permanganate three times a day, and as a result of the treatment at the end of the week she told me all the unpleasant symptoms had disappeared.

The success of treatment in such cases has now been seen in several hundred cases, and is such as to testify to the great value of this drug in these cases.

As regards cases of gastric ulcer one must necessarily speak with great reserve, but the following episode and two cases are interesting as having some bearing on the case:—

In conversation with a medical man who has made

a practice of performing the operation of gastro-jejunostomy wherever he diagnosticates gastric ulcer, I ventured to suggest the possibility of some good being done by the use of calcium permanganate. The suggestion was treated with a superciliousness that deserved to be followed, as luck would have it, by these two cases.

The first was a lady, living some distance in the country, whom I was asked to see in consultation with reference to her very bad gastric symptoms. She was fearfully emaciated, and had been vomiting large quantities of blood, retaining, of course, nothing in the way of food.

I came to the conclusion that the case was one of severe hæmorrhagic exudation; but even if it were a case of gastric ulcer operation was quite out of the question. By way of treatment I suggested a trial of calcium permanganate, which the other two medical men agreed to try.

After a few doses of the drug the hæmatemesis ceased, and to-day she is stronger than she has ever been.

Two days before my consultation, my surgical friend had seen her and strongly recommended an immediate operation!

The second case had been admitted by him for operation, but the day previous to the operation she came to the decision that she preferred to die at home, and, having decided, left the hospital.

She was immediately placed on permanganate *by her own medical man*, and completely recovered within a fortnight!

Other severe cases which may or may not have been ulcerated have yielded to the same treatment, and I think it only fair that patients should be given, first of all, an opportunity of trying a simple remedy before proceeding to an operation of such a severe character as that of gastro-jejunostomy.

The continuation of the inflammation downwards from the stomach to the small intestine gives rise to enteritis,

while inflammation of the large intestine is designated colitis, and it is quite reasonable to expect the drug that would be of value in inflammation of one part of the gut would be of use in inflammation of other parts also, and my experience in enteritis and colitis enables me to state that calcium permanganate is of considerable value in these diseases.

Even in a few cases of appendicitis I have found it of value, but as I have not had a sufficient number I hesitate to say anything definite on the subject.

An inflammation that seems to have been unrecognised until I drew attention to it in the *British Medical Journal* this year is one which appears in men who work before furnaces.

In these men one finds a red line on the edge of the gums, and this appears even in young persons who have been at the works only a month.

It is, in my opinion, on to such a line that lead gets deposited in lead and spelter (zinc) workers, and one would naturally expect that were this inflammation to be reduced the lead line would disappear.

As the gums are the most anterior end of the alimentary canal, in inflammation of which calcium permanganate is of such value, this drug ought to be of service in lead cases.

With that object I administered the drug to several lead workers with very marked lead lines, which lines all disappeared after treatment for three or four weeks.

As most of these workers are big consumers of alcohol, their stomachs are often affected with gastritis, acute or subacute, on to which inflammatory state the lead gets deposited.

Permanganate of calcium, by curing or preventing gastritis, prevents the deposition of lead, and thereby diminishes the chance of lead poisoning, for I am convinced, from a large experience of lead poisoning, that the danger is due to the absorption from the stomach and not the lungs.

These effects are, no doubt, due to some change in the enzymic condition of the blood, which is brought about by calcium permanganate, and although the best and most numerous results have been brought about in cases quite different to those I originally intended to benefit—namely, rodent ulcer—nevertheless, in the limited number of these cases that I have had the opportunity of treating, the results have been very good, one small ulcer situated under the right eye drying up in three weeks.

In addition to healing the ulcers, the general health and feeling improved as well.

In one case of inoperable cancer of the breast, the odour from which was very offensive, I ordered calcium permanganate simply with the idea of removing the offensiveness—an idea that was justified to a great extent, the dressings required being less numerous, and the smell much mitigated.

Another and quite a different class of case that has responded to the internal administration of calcium permanganate is that of *malaria*.

The treatment in these cases was quite empirical, and although the number that I have had the opportunity of treating is small, the results have been excellent—one case which had been discharged from hospital as a semi-invalid was enabled to resume full work in four weeks.

The best form of administering the drug is by means of capsules, otherwise the unpleasantness of the taste is liable to terminate the treatment in a somewhat abrupt manner.

ART. IX.—*Mouth-breathing*.^a By MARIUS ANNÉ
DIEMONT, B.A., M.D., B.Ch., B.A.O., Univ. Dubl.

MOUTH-BREATHING or, what comes to the same thing, nasal obstruction is a common phenomenon, but one of which the full effects are hardly sufficiently appreciated.

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June 29, 1910.

The nose, which is popularly regarded as a special organ for smell, has in reality a more important function to fulfil, in that it is the beginning of the respiratory tract, and modifies the inspired air in such a way that it will suit the more delicate mucous membrane of the rest of the respiratory tract. It will, therefore, be necessary to consider the physiological functions of the nose.

Excepting for about one-twentieth of its area, all the mucous membrane of the nose is concerned with respiration. The air which is inspired is too cold and dry and too impure to be brought into contact with the pulmonary alveoli with safety. Consequently, it needs to be warmed, moistened, and purified.

Now, if the lining of the interior of the nose be shortly considered, and also the path that the inspired air takes when passing through, it will be apparent in what manner these conditions are fulfilled.

The vestibule is lined with skin, covered with abundant vibrissæ. The epithelium throughout the rest of the respiratory part belongs to the columnar ciliated variety. The mucous membrane varies in thickness from one-twenty-fifth to one-quarter of an inch in thickness. It is thickest on the lower borders of the inferior and middle turbinate bones. That on the inferior turbinate is termed the erectile organ, and contains a cavernous venous plexus, muscle tissue, and serum-secreting glands. Mucous glands are formed over the whole of the interior, and the blood supply is very free.

On account of the presence of the turbinate bones and the narrowness of the nasal chambers, the exposed surface is very large in proportion to its cubical capacity.

As to the course the inspired air takes, it has been studied on a black clay model of the organ, the septum being represented by a sheet of glass, so that smoke can be watched as it is drawn through the model, the normal respiratory act being imitated as nearly as possible. The smoke enters the relatively small anterior opening, and then fans out as it reaches the large cavity. The main

streams hug the lower border of the middle and the surface of the inferior turbinate, and are caught and delayed by friction against these parts. A small stream travels *viâ* the olfactory area. During expiration a larger stream touches the olfactory area, and this fact is important in connection with the appreciation of flavours. The inspiratory stream travels slowly, and is given ample time to come into close relation with the extensive area of nasal mucous membrane, which has an active blood supply and many serum-secreting glands, and especially with the erectile tissues of the turbinates. Sufficient opportunity is, therefore, given to the air to be brought to nearly body temperature and to saturation with moisture before it reaches the pharynx (Waggett).

That the erectile tissue is active in this direction can be easily demonstrated in the healthy nose.

1. For if the inferior turbinates be cocaïnised so as to shrink the erectile tissue, the nose feels unduly patent, and the cold, dry air is felt to impinge on the mucous membrane of the posterior wall of the naso-pharynx.

2. For if one leaves a hot room and goes out into the cold air of a frosty night, the erectile tissue in warming the air swells up to such an extent that one can with difficulty breathe through the nose, and experiences a sense of suffocation. This method of warming is not available to the mouth-breather.

3. The third function entrusted to the nose as a respiratory organ is that of purifying the air. Ordinary inspired air contains solid foreign particles and micro-organisms which would be harmful to the lungs either through setting up irritation or, perhaps, causing definite infective processes. The vibrissæ in the vestibule constitute the first bar to the entrance of particles of solid material, and stop especially the larger ones. The smaller particles perhaps escape, but through the slow circulation of the inspired air in the large nasal chambers the chances are that these will come into contact with the mucous membrane and adhere to it. They are then either

expelled by the anterior nares or are carried away by the fluid which is constantly being swept to the posterior nares by the ciliated epithelium.

The exclusion of micro-organisms depends also mainly on the efficient way in which the nose is drained. Some are caught by the vibrissæ, but many pass and stick to the moist mucous membrane. It has been shown that they are present in large numbers in the front of the nose, while the back is free from them in 80 per cent. of healthy noses. Whatever ones are caught on the mucous membrane are swept away before they can multiply, or, as some think, are rendered inert by substances in the nasal mucus. The blood circulation may also be active in this direction, either by bringing protective substances or by activating the ciliated epithelium. It is on the good natural drainage of the nose that the surgeon depends for successful healing after operations on the interior of the organ.

In the fourth place must be mentioned the curious fact that patients suffering from *ozæna*—a condition in which the nose is unduly patent and the mucous membrane degenerated—often complain of feeling suffocated. This condition is possibly due to the want of what one might term “air taste”—a sense which is lost owing to the destruction of the mucous membrane of the nose.

Having considered the respiratory functions of the nose, one can now go on to investigate in how far the mouth can act as a substitute. If one tries the experiment of mouth-breathing for a minute or so one experiences an unpleasant feeling of coldness of the tongue, palate, and pharynx, and if fast respiration be carried on a most unpleasant, dry and cold feeling supervenes in a short time. This is due to the fact that the mouth is not able to warm and moisten the air, having no special apparatus for this purpose, and, further, that the air does not enter through a small aperture and circulate round slowly, as in the nose. Some of it impinges directly on the pharynx without previous warming and moistening.

This would very soon give rise to irritation in the respiratory passages. If, however, the respired air be modified by a warm room with plenty of moisture in the atmosphere, or by suitable climate, breathing through the mouth, or even through a tracheotomy tube, can be comparatively well borne. An expedition to the North Pole would be utterly impossible for a mouth-breather, while the cheeks would be blown out and a sense of suffocation ensue if such a person attempts to drive a motor car at fifty miles an hour.

As to the elimination of dust particles and germs, this becomes a matter of impossibility to the mouth-breather. A greater proportion of solid particles must get down to the lungs, setting up irritation and infection. Abundant germs—amongst others tubercle bacilli—are caught on the tonsils with even more certain effect. For it has of late years become more and more certain that tubercle bacilli get from the tonsils to the lymph glands in the neck and mediastinum, thence probably into the pulmonary artery, whence they gain access to the lungs, or perhaps get disseminated throughout the body by the blood. Thus, then, the mouth decidedly fails to fulfil the duties of the nose as the beginning of the respiratory tract. But this is not all. Mouth-breathing goes further and positively produces harmful effects which never occur in nasal breathing.

One may first consider the changes that would follow mouth-breathing—given a healthy, patent nose. Such a condition, of course, does not exist, for mouth-breathing necessarily means nasal obstruction.

There would be changes in the nose, both externally and internally. Continued disuse would result in atrophy of the small muscles and other coverings on the outside of the nose, and in consequence the upper and lower lateral cartilages, which are responsible for the patency of the nose, would collapse. Then, as the lower borders of the upper pair of cartilages fall inward towards the septum they would leave a depression on each side at this point.

Thus, then, would result a thin and pointed nose, narrow nostrils, and a depression on each side at the upper limit of the vestibule.

As for the interior of the nose, the narrowest part would get blocked, or nearly so, from the falling in of the lateral cartilages above mentioned. Now the air, as it passes the naso-pharynx, abstracts some air from this part and from the nose. If the anterior parts of the nose were patent this air would be easily replaced, and no changes result (in the nose). If, however, there be a blockage in the front (of the nose) the abstracted air could not be replaced quickly enough, and so rarefaction of the air in the nose would follow. As a result, the intravascular pressure would become too great for the support the atmospheric air would give it, and there would be a dilatation of all the vessels, the vascular tissues becoming red and engorged. Such a condition would have important effects on the openings of the accessory nasal cavities. These openings would be closed up more or less by the swollen mucous membrane round them, with the result that drainage would be impossible. The air contained in the cavities would be absorbed, the mucous membrane engorged, and a lot of fluid excreted which would not be got rid of.

Thus, then, mouth-breathing in itself conduces to nasal obstruction, the importance of which fact will be evident later on in this paper.

One may now go on to investigate more particularly the different kinds of nasal obstruction and their effects on the rest of the body.

It is in children, where the bony skeleton during its development and growth is soft and unresisting, and its growth is easily disturbed by unnatural influences, that the most far-reaching effects are seen. In them the most common cause of nasal obstruction is the condition termed adenoids, which prevails to such an enormous extent especially in damp climates. It is not the cause but the result of adenoids or hypertrophy of the pharyngeal tonsil that must be considered here. The growths are usually

first noticed from the third to the seventh years of life, and in one-third of the cases are accompanied by enlarged tonsils. In the first place, the patient is unable to get sufficient air into the lungs *viâ* the nose, and a certain amount of mouth-breathing, perhaps only during sleep, is the result. Now, as has been pointed out above, through disuse the coverings of the nose atrophy, the cartilages fall together, the bridge becomes flattened, and the sharp, pointed nose with broad bridge is the result. Atmospheric pressure is almost as great a factor in producing this condition as disuse. At the same time the nasal chambers become blocked by the engorged mucous lining and by the narrowing of the anterior nares. A chronic rhino-pharyngeal catarrh is the result, and constitutes a very annoying feature of adenoids. The chronic engorgement of the inferior turbinate very often results in hypertrophy of its posterior extremity—a condition which should be taken in hand at the same time as the adenoid growth if complete recovery is to be procured.

The catarrhal condition extends to the accessory nasal cavities. These get swollen, and their orifices get closed up, while the secreted fluid is unable to escape and is liable to give rise to abscess. To cure this condition is impossible as long as nasal obstruction exists, with defective drainage.

The effects on the organ of hearing are no less serious. The naso-pharynx is in a state of catarrhal inflammation, and packed with adenoids. The orifice of the Eustachian tube is closed by the growth or by the swollen mucous membrane. Inflammation may have extended to it from the naso-pharynx, or its contained air may have been absorbed, the mucous membrane flushed owing to lessened atmospheric pressure, and fluid excreted. The membrana tympani is then sucked inwards and tense, and hearing is interfered with until matters are rectified and the pressure in the tube restored. Further complications may be mentioned, such as perforation of the drum, dry otitis media, purulent otitis

media, with all its dangerous complications. Again, successful treatment is possible only after the exciting cause, the nasal obstruction, has been removed.

The changes which occur in and around the mouth must next be considered. In breathing through the mouth the upper lip is elevated and the upper front teeth exposed. The lower lip is thick, and hangs somewhat, while the mandible is a little depressed and retracted. It is important to bear in mind that if mouth-breathing is allowed to continue for a long time, even if nasal-breathing be then restored, the lower jaw will remain in this abnormal position through permanent shortening of the depressor muscles, and the upper incisors will remain exposed. Thus, then, through ignorance and neglect, a disease so easily treated is allowed to leave its mark permanently on the face of the unfortunate patient.

The effects on the upper jaw and palate bones are more pronounced still. The hard palate becomes unduly high, and in a marked case is reduced almost to a slit anteriorly. The main cause of this high arch is to be found in the normal atmospheric pressure against the roof of the mouth, with diminished pressure in the nose. Other causes will be subsequently mentioned. The arched palate serves further to diminish the capacity of the nasal chambers, and by offering resistance to the normal growth of the nasal septum, causes a deviation of this structure to one side or the other. The alveolar process on either side of this high palate is broad and rounded, and the alveolar arch, which should be widely open, is laterally compressed and V-shaped. Owing to the narrowness of this arch the teeth have not sufficient room to erupt in their normal positions. The upper incisors meet in front at an acute angle, while the lateral incisors and canines come out in front and behind the normal line wherever they can find room. The teeth of the upper jaw just touch by their edges those of the lower, and the upper central incisors project in an unsightly manner. Food is liable to collect between the teeth and early decay to set in.

But air-pressure does not alone account for these deformities of the upper jaw. The tongue is a powerful muscular organ which is always in a state of tonus, and rests with its tip against the upper front teeth and front of the palate. It, therefore, plays its part in the moulding of the alveolar arch. In the mouth-breather the tongue is not in this position, and its support is entirely lost to the alveolar arch.

A third factor in causing a narrow arch is the inward pressure exerted by the buccal muscles of the mouth-breather.

All the changes in the face so far enumerated go to complete that characteristic dull, half-idiotic expression of the adenoid patient which is so commonly seen in the out-patient dispensaries, and well illustrated in some of my photographs.

In one-third of the cases the pharynx shows enlarged tonsils, and usually it is in a state of chronic catarrh; chronic laryngitis and bronchitis are usually present.

Septic absorption from the adenoids and tonsils causes enlargement of the cervical lymph glands, and sometimes tuberculosis supervenes in them.

On the thoracic walls changes are produced which to a certain extent persist throughout life. In the child the costal arches are soft and yielding, especially at the junction of the cartilages with the ribs. The patient attempts to breathe through the obstructed nose or mouth-breathing is impeded, and when air is drawn into the thorax against this obstruction the soft anterior parts of the skeleton are forced to yield by degrees, until a distinct furrow is produced on either side of the sternum, turning outwards below. The prominent sternum with the depression on either side constitutes the familiar chicken breast, and is most marked in rickety subjects. It is said that funnel breast and barrel chest are also sometimes caused by obstructed breathing.

Besides the signs and symptoms already referred to there is a large number of other symptoms met with in different cases of nasal obstruction.

Some of these are due to deficient oxygenation of the blood, as disturbed sleep with convulsions and night terrors, anæmia, headache, arrested growth and mental dulness. Others are of reflex origin—for instance, stammering, asthma, hay-fever, and nocturnal incontinence of urine.

Attempts to breathe through the obstructed nose cause restlessness and snoring; buccal breathing gives rise to irritation in the pharynx, larynx, and bronchi with cough. To the presence of the adenoids themselves are due chronic catarrh of the nose and naso-pharynx, with muco-purulent discharge, gastric disturbance and anæmia from swallowing of the discharge, loss of nasal quality in speech and sometimes epistaxis.

In older children and in adults many of these symptoms are present, but the skeletal and other changes are of course not nearly so marked.

In these older patients mouth-breathing is usually due to nasal polypi or chronic hypertrophic rhinitis, and the general symptoms are the same as in adenoids.

ART. X.—*The Present Position of Tuberculin Therapy.*^a
By WILLIAM LEGGETT, M.D. Univ. Dubl.

IN the total number of its victims and the cost to civilised countries tuberculosis far exceeds all other diseases. It has existed from the earliest times, and appears to have been familiar to writers even before the time of Hippocrates (B.C. 460). The prevalence of tuberculosis is universal, and no other disease produces so much poverty and distress. It has been variously estimated that from one-tenth to one-eighth of all deaths are due to tuberculosis, and this even does not include the enormous number of people who are reduced to a state of invalidism on account of the variety of its affections, and whose deaths result from some intercurrent malady.

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June 29, 1910.

No individual can be said to be immune from tuberculosis. It has been said that every member of a civilised community is, at some time, affected with the disease in some form or other. The insidious onset of the disease frequently protects it from discovery, so that its victims may be partially disabled for months, or even years, before its true nature is recognised.

Even a rigidly enforced system of registration can never furnish an accurate estimation of the damage done by the disease. Bearing these facts in mind, it is not surprising that an enormous amount of time and of experimental study has been spent in the attempt to find a cure for tuberculosis. To find a cure for, and to set about in a practical and scientific way the prevention of, the disease, it was, of course, necessary to set at rest all doubt as to its exact nature, and to discover its true cause. To gain this most important end, years of experimental study were spent by numerous workers interested in clinical research. The actual achievement, in 1882, of successfully demonstrating the causative relation of the tubercle bacillus to tuberculosis was due to Robert Koch, a Health Officer in an obscure German town. Koch's demonstration of the true nature of the bacillus was complete. The immense amount of work which has been done since that time has tended only to prove the accuracy of his discovery.

This discovery was soon followed by attempts to destroy the bacillus in the tissues of the infected organism by the administration of various substances, but with no good results, there being no drug which is known to have a specific action against tuberculosis. Koch next distinguished himself by introducing, in 1890, tuberculin as a possible cure for tuberculosis. This name was given, in the first instance, by Koch to the filtered and concentrated broth from cultures of tubercle bacilli. It contained, therefore, a glycerine broth extract of the bacilli together with such soluble products of the bacilli as were formed during their growth (Baldwin). The process has

been modified in various ways, the object in all being to make a hot glycerine extract of the intra-cellular poisons of the tubercle bacillus. Koch was led to the discovery of tuberculin by the fact that he found that tuberculous and healthy animals gave quite a different reaction to a subcutaneous injection of living virulent tubercle bacilli. And so the treatment of tuberculosis from the ætiological point of view began with Koch's tuberculin.

He found¹ that when a healthy animal (guinea-pig) is inoculated with a pure culture of tubercle bacilli, a local ulcerating lesion is produced after about two weeks, this ulcer remaining until the animal dies. In the case of a guinea-pig already suffering from tuberculosis, a local lesion is also produced, resolving eventually into an ulcerated patch: but in this case the ulcer rapidly heals without involving the surrounding tissues, showing in this latter case that immunity had been conferred through the first infection.

Again, it is found that when tubercle bacilli are injected subcutaneously they are not absorbed, but give rise to local abscesses.

The curative substance should then be dissolved out, and an attempt to do this was undertaken by Koch with considerable success. In his researches he found that human beings were much more susceptible to the action of this substance than guinea-pigs; for instance, in proportion to the body weight, $\frac{1}{1500}$ part of the quantity producing no result in the guinea-pig produces a marked effect in man.

With regard to the specific action of tuberculin on tubercular tissue it apparently affects the tissue surrounding the bacilli, but does not kill the bacilli themselves. Well marked circulatory and metabolic changes take place, giving rise to a necrosis or disappearance of the living tubercular tissue. Necrotic tissue, already so, is not affected.

According to Koch's views, after each injection a certain amount of tissue capable of reaction disappears, so

that increasing doses are necessary to produce a proportionate reaction; and he further assumed that the gradual disappearance of the reaction proved the disappearance of the tubercular tissue. However, it is now known that tolerance to tuberculin is to be looked upon as a sign of immunisation to a bacterial toxin. Koch experimented with tuberculin on all kinds of cases of tuberculosis, and concluded that patients in early stages of pulmonary tuberculosis were curable by this means: also, that climate, open air, and diet should be strictly attended to.

But the most important point is the earliest possible diagnosis of the disease and application of the treatment. In spite of the cautions given as regards dosage, method to be employed, and stage of disease, advanced cases were given large doses by faulty methods, and so not only unsatisfactory but disastrous results were attained. Some observers protested against the use of this mode of treatment, particularly amongst advanced cases, and stated that it promoted the extension of the disease by destroying surrounding tubercular tissue and setting free tubercle bacilli, so as possibly to infect other organs. Virchow was amongst those who asserted that the injections tended to generalise the disease. Finally, owing to the outcry raised about the year 1891, tuberculin was practically abandoned.

Recently, Sir Almroth Wright² introduced a method for making the diagnosis in doubtful cases of tuberculosis and for regulating the use of tuberculin. This is known as the opsonic index method, and depends on an estimation of the protective substances in the blood. The power of the serum to render bacteria more easily acted upon by the phagocytes is termed the opsonic index of the blood, and the term "opsonins" is given to the hypothetical bodies which are the cause of this property. It was expected that the value of the opsonic index, both for diagnosis and treatment of tuberculosis, would be considerable. Its value depends on the fact that it shows

the presence of the negative and positive phases of the opsonic content of the blood or the amount of the protective substance present.

If a marked negative phase is shown, then no tuberculin should be given, as it will accentuate the effect of the toxin which is being poured out by the bacilli, and which has caused the negative phase.

Thus, tuberculin should be given only when a positive phase is beginning to wane.

The dose of the vaccine is regulated by the variations of the negative phase.

A prolonged negative phase means that too large a dose is given, also if successive negative phases are longer the dose is too large. If successive negative phases are shorter the dose is either correct or too small: if too small, the positive phases will not be well marked and the clinical progress will be unsatisfactory.

The technique of the method is open to a great many errors, owing to the fluctuation of the opsonic content being very wide. It is difficult and complicated to carry out, and entails a vast expenditure of time, and so is of no practical value to the majority of practitioners.

Nevertheless, it is a most interesting study and of great scientific value in connection with the process of immunisation. It is the method by which the English school of workers regulate the doses and frequency of administration. Wright and Douglas,³ in their researches on the rôle played by the serum in phagocytosis, found that washed leucocytes free from serum were non-phagocytic, but were reactivated by the addition of normal serum.

If the serum was first heated to 60°-65° C. phagocytosis did not take place. If, however, the serum and bacteria were mixed and kept at a temperature of 37° C. for fifteen minutes, then heated to 60° C., phagocytosis would still take place, on the addition of washed leucocytes. They thus demonstrated that normal serum contained a substance which could be destroyed by heat, and which acted on the bacteria in such a way as to render

them suitable for ingestion by the leucocytes. To this substance they gave the name "opsonin," and they have devised a method of estimating whether the quantity of it in the blood be above or below normal.

To do this three things are required—washed leucocytes, serum from the blood to be tested, and bacterial emulsion. These are prepared in the following manner:—

A quantity of fresh blood is taken and mixed with a weak solution of sodium-citrate to prevent coagulation. This is centrifugalised, and the citrated plasma is pipetted off. Normal saline solution is then added to the mass of red cells and leucocytes, and this is also centrifugalised and the supernatant fluid is removed. This washing process is repeated several times, till finally a mixture of red cells and leucocytes is got entirely free from plasma. A small quantity of the blood to be tested is drawn off and allowed to coagulate, and the serum is separated. A control serum is similarly prepared from the blood of a normal individual. The bacillary emulsion is prepared by emulsifying in distilled water and centrifugalising to throw down any clumps which may be present.

Equal quantities of the washed cells, bacterial emulsion, and serum to be tested are drawn up into a suitable pipette, and, after thorough mixing, incubated for fifteen minutes at 37°C . A control specimen, in which normal serum is used, is prepared and incubated in the same manner. Films are then prepared from each on ordinary glass slides, fixed and stained, and the number of bacilli ingested by not less than 50 leucocytes counted. The ratio of the specimen prepared, with the patient's serum gives the patient's opsonic index.

Wright⁴ and his followers, after estimating the index in a large number of cases, have found that in normal individuals it is fairly constant, but is subject to considerable variation in infected patients.

They have studied the effect of the introduction of

tuberculin to the system on the opsonic content, and have found that on injection a decrease occurs. This is called the negative phase. It lasts for three or four days, and is followed by an increase or positive phase lasting for six or seven days. The index then slowly returns to normal, the whole cycle lasting from ten to fourteen days. They have found also that a similar series of changes occurs as the result of auto-inoculation.

After treating a large number of cases and controlling the treatment with opsonic index determinations they have come to the conclusion that the maximal benefit for the patient is derived from keeping the index as far as possible within normal limits, and that to do this only small doses are necessary. They also believe that harmful results are caused by giving a fresh injection during the negative phase induced by the last; and that no advantage is gained by giving a fresh injection before the end of the positive phase. The method they advise, therefore, is that small doses be given at intervals of ten or fourteen days, and this is the method generally adopted in this country.

It is questionable whether Wright's deductions are absolutely correct. The results got by the German method seem to indicate that he has at least over-estimated the danger of the negative phase. His work, however, has been of great value in increasing our knowledge of the nature of bacterial injections and the method by which the body defends itself against them. To it we owe practically all we know of the process of immunisation, and it has led us to a better understanding of the immediate effect of our injections and of the dangers to be avoided in the treatment.

The German method⁵ of regulating the dosage and frequency of administration aims at producing as high a degree of immunity as possible, and towards this end rapidly increasing doses are given at short intervals. The doses of T. R., for instance, are raised quickly from $\frac{1}{1000}$ mgms. to 20 mgms. The guide to treatment is the

patient's condition as shown by his temperature, pulse, and other symptoms. Formerly injections were given every day, but it has been recognised that this course is dangerous owing to the occasional occurrence of delayed reaction, and a longer interval is now allowed between successive injections. A small initial dose is given, and if no reactions occur it is followed by a slightly larger one, two or three days later. This process is continued until the maximal dose is reached, longer intervals being allowed between successive injections as the dosage is increased. If any dose produces a violent reaction the treatment is suspended until the temperature has returned to normal and has remained at that for a few days. The same dose is then repeated, or a smaller one given. It is usually found that the second injection is well borne, but occasionally it happens that it is followed by a more violent reaction than that caused by the first.

This is due to a hypersensibility to the toxin, and when it occurs the treatment is entirely suspended for some months, and then much smaller doses are exhibited. When the maximal dose is reached it is repeated at intervals of about a month, or the treatment may be suspended for some time, and then the whole course repeated.

As has already been stated, the first tuberculin era came to an end about 1891, owing, chiefly, to the opposition raised by morbid anatomists, and amongst these Virchow. However, there appears to be little doubt that the harmful results spoken of were greatly exaggerated. Koch himself did not experience them, and even Virchow afterwards confessed that all the pathological changes he had observed occurred also in the absence of tuberculin treatment.

Bandalier and Roepke⁶ point out that if the result of the action of tuberculin is to be accurately seen in the *post-mortem* room it must be in cases which have been treated for a long time, and have died of some inter-current disease.

The stormy reaction produced by large doses, extensive destruction of tubercular tissue, and setting free of bacilli,

appear to have been the chief objections brought forward by the critics at this time: and it is due to a number of workers, like Petruschky, Goetsch, and Klebs, that tuberculin began a new era, these men having recognised the importance of avoiding a reaction, as far as possible, by reducing the therapeutic doses.

It was chiefly due to the efforts of Goetsch, in 1901, that tuberculin was again brought into prominence by the excellent results he obtained from the reactionless method.

This is the modern method, and consists in the administration of the minutest doses in the beginning: gradually getting larger as the organism becomes more tolerant of the vaccine, so that eventually the largest doses may be given and the severer forms of the disease come within the scope of treatment. At the same time, owing to the absence of unpleasant reactionary conditions, the great objection raised by the opponents of the method has disappeared.

In searching for a specific for tuberculosis, Koch was assisted by his knowledge of immunity. He knew that in the case of many diseases, animals can be made immune by the injection of gradually increasing doses of the toxin of their particular diseases. Such immunity is most safely brought about by the injection of gradually increasing doses of the products of non-virulent bacilli: and that when tubercle bacilli⁷ are cultivated for several generations on artificial media they tend to lose their virulence. Koch consequently experimented with the object of discovering whether immunity from tuberculosis could be brought about by injecting gradually increasing doses of the products of non-virulent tubercle bacilli. He suggested that the presence of such products as toxins leads to the production of anti-toxins within the body which either actually kill the bacilli or render the tissues unsuitable to their existence. He now announced the production of a substance capable of rendering healthy guinea-pigs immune to tuberculosis and of arresting the disease in these animals, if already suffering from it, without causing harmful results.

This was Koch's first or old tuberculin, and was produced by growing the bacilli for about six weeks on slightly alkaline veal-broth to which a percentage of peptone and glycerine had been added; oxygen was fully supplied.

The fluid obtained held at least some of the toxins produced by the bacilli.

This fluid was filtered through porcelain, the bodies of the bacteria being removed. The fluid was then evaporated to one-tenth its bulk, and the resulting solution of the toxins was called tuberculin. Tuberculin thus prepared is a thick, dark-yellow fluid, and is practically a solution of the toxins in glycerine.

Owing to various objections raised to the use of this old tuberculin on account of bad results, several modifications were introduced; though it should be remembered that the bad results were probably due to unsuitable cases and doses. Koch introduced his modifications chiefly with a view to diminishing the febrile reaction. Instead of the toxin produced by growing bacilli in a fluid medium he used an extract of the organisms themselves.

This was procured by thoroughly grinding a well-dried culture of tubercle bacilli in a mortar; the resulting powder was treated with sterile distilled water and centrifugalised. The supernatant fluid was removed and the solid residue, freed from soluble toxins, dried. The process of extraction was repeated by triturating with 20 per cent. glycerine solution, and then centrifugalising was repeated several times, the fluids used each time being preserved, and the whole finally mixed. This mixture was called new or residual tuberculin (T. R.)⁸. Another modification is called emulsion of bacilli, and consists of powdered tubercle bacilli suspended in 50 per cent. solution of glycerine, the fluid being allowed to stand until all particles of any appreciable size have sunk to the bottom. The supernatant fluid should contain 5 mgrams. of powdered bacilli per cubic centimetre. For use it is diluted with normal saline solution.

It is found that when a minute dose of the old tuber-

culin is injected hypodermically into an animal suffering from tuberculosis, definite symptoms are produced - rise of temperature, one to three or more degrees of Fahrenheit, accompanied by symptoms of illness. If there is a localised focus of tuberculosis open to observation, a reaction, shown by heat, redness and, perhaps, casting off of necrotic tissue, is seen. This is well seen in lupus vulgaris, for example. After the reaction has subsided, an improvement may be observed in the local disease with tendency to healing.

On the other hand, when the new tuberculin is injected there is also a general febrile reaction, but apparently no changes are seen at the site of a local lesion. It is supposed that this new tuberculin produces a condition of general immunity by stimulating the tissues to form antibodies to the tubercle bacilli. It also seems to raise the opsonic properties. Occasionally the injection of either variety may be followed by a rigor, severe headache, joint pains, albuminuria. At the British Congress on Tuberculosis, Koch referred to 3,000 tests made with tuberculin without any ill effects. He remarked that "the most valuable property of tuberculin is that even when injected subcutaneously in very minute doses, it produces the characteristic reaction in both man and animals affected with tuberculosis." Another authority (Brown) states:—"No case of early or incipient pulmonary tuberculosis has been shown to fail to react to a dose of 10 mgm. or less of old tuberculin."

REFERENCES.

- ¹ Koch. Deutsche medizinische Wochenschrift. 1891. No. 3.
- ² Wright and Douglas. Proc. Roy. Soc. Vol. 72. No. 433. 1903.
Vol. 74. No. 499. 1904.
- ³ Wright and Douglas. Lancet, Oct. 22, 1904.
- ⁴ Wright. Lancet, Dec. 2, 1905.
- ⁵ Lawrasson Brown on Specific Treatment of Tuberculosis.
- ⁶ Bandalier and Roepke. Tuberculin in Diagnosis and Treatment. 84.
- ⁷ Latham. Pulmonary Consumption.
- ⁸ Bosanquet and Eyre. Serums, Vaccines and Toxins.

(To be continued.)

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A System of Syphilis, in Six Volumes. Edited by D'ARCY POWER, M.B. Oxon., F.R.C.S.; and J. KEOGH MURPHY, M.C. Cantab., F.R.C.S. With an Introduction by SIR JONATHAN HUTCHINSON, F.R.S. Vol. IV. *Syphilis of the Nervous System.* By F. W. MOTT, M.D., F.R.S., F.R.C.P. Royal 8vo. Pp. 484 + xviii. With 86 Illustrations (29 plates and 57 figures). London: Henry Frowde, Hodder & Stoughton, Oxford University Press.

"*SYPHILIS OF THE NERVOUS SYSTEM*," by F. W. Mott, M.D., F.R.S., F.R.C.P., is the title of the fourth volume of the "*System of Syphilis*," edited by D'Arcy Power, M.B. Oxon., F.R.C.S., and J. Keogh Murphy, M.C. Cantab., F.R.C.S. The present volume differs from the others in this "*System of Syphilis*" in some respects. It contains 154 more pages than the average number in its predecessors. At the same time its bulk is less. A better quality of paper is used, and this is smooth and slightly faced after the fashion of art paper, instead of being rough as in the former volumes. Its chief distinction, however, is the fact that it is the work of one writer. Its author is an eminent neurologist and neuro-pathologist, who, in virtue of his official connection with the large London asylums, possesses unique and unrivalled facilities for the investigation, clinically and by laboratorial methods, of cerebro-spinal diseases.

We have carefully studied the book before us, and can fully endorse the opinions expressed by the editors in their preface to the volume "that Dr. Mott's work may be looked upon as the first comprehensive and authoritative statement of recent advances in our knowledge of

syphilis of the nervous system in the light of biological and biochemical research," and also that "future workers in this field will find by reading this volume much that will be suggestive as to the nature of their investigations which will be rewarded by a fruitful crop."

The text includes the records of several cases, and these, combined with the numerous illustrations of microscopical sections, render the book—which otherwise might prove somewhat deep and obscure—more easily understood by readers of less technical and scientific knowledge. Individuals other than neurologists will find on reading Dr. Mott's book that they will obtain, as it were collaterally, more information than the mere title of the work would suggest. We mean that, having familiarised themselves with the effects produced by the destructive action of syphilis on the various nerve tracts and cortical centres, they will appreciate more fully the signs and symptoms of a class of diseases which are ordinarily somewhat incomprehensible to the busy general practitioner with little time for regular study. The explanation of a series of symptoms is easily understood once the morbid anatomy has been made clear and is followed by illustrative clinical records of any given case. We believe that the practitioner who has allowed his physiological and neuroscopical knowledge of the central nervous system to become "rusty," and who also has taken only a casual interest in the new diagnostic procedures, will derive much gratification from the brightening-up effect the careful study of Dr. Mott's book will have upon him.

Dr. Mott has not only embodied in his exhaustive work all the information available on his subject—the bibliography included in the volume consists of some 555 references to the publications of other authorities—but he has also introduced much original work done by himself. His explanation of the "*locus minoris resistentiæ*" in syphilitic disease of the cord is based upon actual anatomical peculiarities special to these particular parts. He rejects Benedikt's law "that tabetic motor symptoms, no matter what development they may have reached,

vanish as soon as optic atrophy appears." Dr. Mott finds that it has no influence on the ataxy when it arises in a patient already in the second stage of ataxy. A popular text-book of medicine, much favoured by men preparing for their final examinations, accepts Benedikt's law.

Dr. Mott's observations of general paralysis and tabes induce him to agree with Fournier as against the opinions held by Bose, Lesser, and others, that these diseases are not examples of quarternary syphilis, though essentially due to that disorder. He regards them as being sequelæ to syphilis rather than as due to the immediate presence of the spirochætæ. They are caused by a decay of the nerve elements following the devitalising effects of a former attack of syphilis. He accordingly prefers the terms para-syphilis of Fournier and metasyphilis of Möbius.

From *post-mortem* examinations of the brain and cord Dr. Mott is convinced that general paralysis and tabes dorsalis are pathologically the one disease, their clinical manifestations being due to that part of the central spinal system which is chiefly affected. He lays great stress upon the confusion apt to occur in diagnosing syphilitic brain disease as general paralysis. He has seen several cases admitted to asylums as general paralytics which were really cases of cerebral syphilis, and as such were cured and discharged after the administration of antisyphilitic remedies. On the other hand, he states that cases so admitted are not subsequently diagnosed as active syphilis of the brain, and, continuing to be regarded as general paralysis, do not receive mercury, and in consequence go from bad to worse. This is a most disquieting piece of information, and one which makes us ardently desire that the efforts of the Medico-Psychological Association to inaugurate special certificates in mental diseases will be successful. A general practitioner who signs a lunacy certificate may be excused his innocence in case of error, but one professedly having special experience in the care and treatment of the insane cannot be so readily pardoned. Now that the diagnosis between these conditions can be settled by the Wassermann reaction and

bio-chemical examination of the cerebro-spinal fluid, we would regard it as culpable that a case of syphilitic brain disease, which may be curable in three weeks with suitable treatment, should be allowed to literally decay and rot for want of an accurate diagnosis.

There are many easily observable signs which may be regarded as danger signals of threatening parasymphilitic conditions, all of which are referred to by Dr. Mott in this volume. He has traced the various affections with so much detail and precision that it is easy to grasp what degree of significance we should attach to any particular manifestation arising in the course of syphilitic sequelæ. The work will be indispensable to neuro-pathologists and also to those who are conscientiously engaged in the care and treatment of mental and nerve cases.

We should like the volume to have a wide circulation, and trust it will meet with the recognition it so well deserves.

We congratulate Dr. Mott on the successful accomplishment of his task, and our interest in his work is enhanced by the belief that he is a fellow-countryman, originally belonging to Roscommon.

S. S.

Walker's Medical Loose-Leaf Book. London: John Walker & Co., Ltd., Farringdon House, Warwick Lane, E.C. 1910.

THIS ingenious pocket-book contains a number of loose leaves for entries of visits, names and addresses of patients, cash accounts, vaccination engagements, nurses' addresses, obstetric engagements, besides treatment and ledger sheets, case-sheets, temperature charts, memorandum pages, and prescription forms. All of these can be arranged as regards number and order to suit the user's special requirements. Refills may be obtained at any time.

In connection with the loose-leaf pocket-book transfer cases may be had in which any sheets or diagrams required for future reference may be stored. These

transfer cases are bound in smooth cloth, round-cornered, and fitted with mechanisms of various holding capacities.

The rings which hold the leaves together are opened by pulling a sliding bar from above. They are closed by pushing the bar from the top.

The pocket-book is covered with flexible genuine Morocco, leather-lined, the price complete being 8s. 6d. net. A more expensive binding—11s. 6d.—has pockets and is supplied with leather band and button fastener. A further fitting with back loop and pencil costs 12s. 6d. All these bindings are strong and very durable, so that the covers should last several years.

Public Health. In Five Parts. Second Edition. Revised by W. ROBERTSON, M.D., D.P.H.; Medical Officer of Health, Leith. Catechism Series. Edinburgh: E. & S. Livingstone. [No date.]

THIS work consists of five paper-covered booklets in which the subject-matter is divided as follows:—

Part I.—“Water.” Pp. 49.

Part II.—“Air and Ventilation, Warming, Lighting, and Climate.” Pp. 53.

Part III. “Sewage and its Treatment.” Pp. 56.

Part IV. “Vital Statistics, Dwellings, Meteorology.” Pp. 50.

Part V. “Epidemiology, Food, Burial, Water-closets, Disinfectants, Heating, Hospitals.” Pp. 42.

It aims at aiding students preparing for the final examinations in Medicine and candidates for the Diploma in Public Health, the method adopted being that of question and answer. We do not profess to like the method, and the perusal of these booklets convinces us that the man of average intelligence would obtain a sounder knowledge of the subject, and spend his time more economically, by studying a recognised text-book on Public Health than he would by cramming his brain with condensed statements such as we see in the pages before us. The scope of the work is comprehensive, and many of the

answers give cause for thought and reasoning to one who knows his work. But for the average student much of the information presented is quite inconclusive. Examples might be taken from almost every page—a few selected at random must suffice:—The Pasteur-Chamberland and the Berkefeld filters cannot be described satisfactorily in five lines; the question “How may malaria be treated?” deserves more than three lines by way of answer; the “Hygienic treatment of phthisis” is dismissed in seven lines; thirteen pages are devoted to the chemical analysis of water, but we look in vain for reference to the bacteriological methods of examination; the answers to the questions “What is a drain?” and “What is a sewer?” should be the definitions given in the Public Health Act and not the incomplete statements given in the text. The work is marked by an absence of a sense of the relative importance of the subjects treated, many minor matters being dealt with at length, while essentials are often disposed of in brief, inadequate sentences.

The whole forms a typical crammer's handbook, and as such its educational value is discounted.

Rhinology. A Text-book of Diseases of the Nose and Nasal Accessory Sinuses. By PATRICK WATSON WILLIAMS, M.D. (Lond.). London, New York, Bombay, and Calcutta: Longmans, Green & Co. 1910.

It is refreshing to read a new book which is not modelled on quite conventional lines and in which the author does not fear to break new ground, while, at the same time, he makes use of the work already done by others and uses illustrations from the works of the pioneers in rhinology, amongst whom may be mentioned Zuckerkandl, Ónodi, Hajek; and it is worthy of special mention that even in his preface the author insists that operative rhinology must be based on accurate anatomical knowledge.

It might almost be inferred from the author's name that we will find the stereoscope in a prominent position,

and this is indeed the case, as there is a splendid series of stereoscopic plates at the end of the book.

If it is possible to single out some chapters for special commendation, perhaps the most noteworthy are those on the physiology of the nose, skiagraphy of the accessory sinuses, and the treatment of the empyemata of the accessory sinuses, and the reverse might be said of his chapter on the nasal neuroses, affections which are becoming increasingly common, and in the treatment of which much good work is being done—for instance, the treatment of asthma is barely touched on.

Finally, it is to be hoped that the circulation of the book will be large, as it is worthy of a place in every rhinologist's library.

Variation in Susceptibility of Guinea-Pigs to Diphtheria Toxin. By H. J. SUMMERSON, Ph.D., and A. T. GLENNY, B.Sc. Reprinted from the "Journal of Hygiene." Vol. IX. No. 4. December, 1909. From The Wellcome Physiological Research Laboratories.

THE writers show that the minimal lethal dose of diphtheria toxin for a 250 gram. guinea-pig is a variable quantity, rising in summer and falling in winter. The rate of growth of guinea-pigs is, however, more rapid in the summer months, so that animals of the same weight are as a rule younger in summer. For guinea-pigs of the same weight the fatal dose increases with the age.

The Active Principle of a Bini Spear Poison. By P. P. LAIDLAW, M.A., B.C. Reprinted from the "Journal of Pathology." Vol. XXXIX. No. 5. December 23, 1909. From the Wellcome Physiological Research Laboratories.

THE poison was obtained from two spear-heads poisoned for elephant hunting by a Beni huntsman of Benin city. The poison belongs to the class of glucosides, and gives the characteristic colour reaction of Kombé strophanthin.

which it also resembles in its solubilities and physiological properties. Crystallisation, however, was not possible, probably owing to the presence of impurities.

Le Cancer du Sein et son traitement opératoire. Par le DR. W. SAMPSON HANDLEY, Professeur au Collège Royal des Chirurgiens d'Angleterre; Chirurgien Assistant à l'Hôpital Middlesex et Chirurgien à l'Hôpital Bolingbroke de Londres. Édition Française par le DR. ADRIEN LIPPENS. Préface de M. le PROFESSEUR A. DELPAGE, Professeur de Clinique Chirurgicale à l'Hôpital Saint Jean, Lon., D.Sc., de l'Université de Sheffield. Bruxelles: H. Lamertin, Éditeur, 20 rue du Marché au-Bois; Paris: A. Malone, Éditeur, Rue de l'École-de-Médecine.

THIS volume deals with the pathology of cancer of the breast in its bearing on operative treatment. The first seven chapters deal with the method of cancerous dissemination from a primary focus. The next three are devoted respectively to the pathology of cancer "en cuirasse," the natural processes of repair in carcinoma, and the anatomy of the breast and axillary glands, while the last three chapters deal with the operative principles to be deduced from the pathological and anatomical findings.

The author, while not denying the very occasional dissemination of cancer by embolism, exposes the inadequacy of the embolic theory, and demonstrates that the majority of cases of secondary growths of supposed embolic origin may be better explained as the result of a centrifugal spread from the primary growth along the lymphatic plexus situated in the fascia connected with the original focus.

Subcutaneous nodules usually distribute themselves somewhat circumferentially around the original growth, the most distal parts, the forearms and legs, being usually immune. Bony deposits, too, spare those bones distal to the knee and elbow, while deposits in the humerus and

femur indicate a transfascial origin by their seats of election. Visceral dissemination in early cases is more often abdominal than thoracic, the cancer cells entering the abdomen by lymphatics from the deep pectoral fascia. In the serous cavities secondary growths may originate from free carcinomatous elements, and gravity, therefore, is often a determinant of their site. The direction of the lymphatic flow is not of great importance as embolic cells get hurried to the nearest lymph gland, which is ultimately choked, and the flow arrested. Evidence is forthcoming that the glands play an antagonistic part to the cancerous invasion.

Cancer cells not infrequently pass into the blood stream and embolic foci arise, but such are, in the great majority of cases, destroyed.

Some excellent drawings of preparations made by the author's method of demonstrating cancer in thin macroscopic sections show that the skin nodules are derived directly through lymphatic connections from the fascial growth and not from extension of growth along the skin.

The conclusions as regards operative procedure are very fully given. The author insists especially that a much larger area of subcutaneous tissue must be removed than has heretofore been thought necessary. Especially must the fascia leading towards the epigastric angle be carefully removed to prevent visceral recurrence.

We congratulate Mr. Sampson Handley on his book, which is a clear exposition of thoughtful and painstaking work which, we believe, should not only prove a permanent addition to pathology and surgery but may well be the means of saving many lives.

The Work of the Digestive Glands. By PROFESSOR I. P. PAVLOV. Translated by W. H. THOMPSON, Sc.D., M.D., F.R.C.S. Second English Edition. London: Charles Griffin & Co. 1910. Pp. 266.

It is with much pleasure that we notice the second edition of Professor Thompson's excellent translation

of these celebrated lectures of Professor Pavlov. The present edition differs in many respects from the former one; not only has the phraseology throughout been improved, but much new matter has been added. The number of pages has been increased from 196 to 266 and the illustrations from 19 to 43. The additions to the text are in great part distributed throughout the book, and give results of investigations made by the followers of Pavlov since the publication of the first English edition. Chapter IV. is in great part newly written from data given by the author. In the first edition this chapter gave experiments showing the specific excitability of the afferent nerves of the salivary glands. It was shown that although these glands had many different functions to perform, to moisten, dissolve, lubricate, and chemically change the food, as well as to rinse out the mouth, and to dilute or neutralise injurious substances when introduced into the buccal cavity, and although it might appear at first sight that any stimulus was sufficient to call the nervous mechanism into activity, yet this was not so, but that the sensibility of the afferent nerves was specific, some stimuli acting on one gland, some on another. Thus, the submaxillary secreted under psychic excitation—as when food was shown to a hungry dog, when he chews meat, when sand is introduced into the mouth, when the mucous membrane is stimulated by a feather dipped in acid, while the parotid does not secrete at sight of food, or when moist flesh or fresh bread is chewed, but is readily called into activity when dry meat powder is given or when the animal chews stale bread—the dryness in this case being the exciting agent. A number of later experiments are now recorded which have been made by Wulfson, Snarski, Henri and Malloizel, Heymann, Salheim, and others. The animals employed were mostly dogs with suitably made salivary fistulæ. “Foods of different kinds were either given them to eat, or various substances, such as acids, alkalis or solutions of salts, were introduced into the buccal cavity. In each

case the stimulus was kept up for a definite length of time, usually for one minute. The saliva secreted during that period was collected and measured. Determinations were also made of its content of total solids, of organic solids, of ash, and in some cases, of its ferment and mucin. The viscosity of the saliva was also measured by noting the time required by a given quantity to flow through a narrow glass tube of definite bore." The results are given in a table, from which the following deductions are drawn:—"1. The work of the salivary glands varies widely both in quantity and quality according to the degree and nature of the stimulation. 2. the variations in the quantity and composition of the saliva secreted do not always run parallel, indeed they often markedly diverge. 3. The differences, nevertheless, admit to a certain degree of systematic arrangement." The drier and harder the food the more secretion is yielded by the mucous glands. Milk, however, is a remarkable exception, causing as it does a more abundant flow than does flesh. The milk saliva, furnished chiefly by the submaxillary gland, is very concentrated and very rich in organic matter. The explanation of this is that the mixture of mucus saliva with milk causes the latter to form with the gastric juice a loose, easily digested, coagulum.

"Among substances resisted by the animal, some require very special measures, and these are apparently provided by the parotid glands. Thus acids and alkalis, in marked distinction to all other chemical irritants, receive a saliva very rich in protein material. Their harmful effects on the buccal mucous membrane are thereby greatly reduced. That these measures are of use is shown by the fact that large quantities of 0.5 per cent. hydrochloric acid can be repeatedly poured into a dog's mouth without causing the least injury, whereas if its tongue be dipped into the same solution for a few minutes the epithelium peels off in a layer as if scalded."

A description of the course of the nerves of the salivary glands, and a discussion of the theories which have

been put forward to explain their action follows. Heidenhain's celebrated theory of trophic and secretory nerves is considered, as well as that which assumes only one kind of secretory nerves, and explains the difference in the action of the cranial and sympathetic fibres by their opposite effect on the blood-vessels. It is shown that many phenomena can be explained by either theory. "Malloizel has, however, shown that after section of the cervical sympathetic and removal of the influence of its trophic fibres the natural stimulus of an eatable substance calls forth even a more concentrated saliva than before. A fact which is difficult to explain by either theory has been recorded by the same observer—namely, that after atropin is given to a dog with permanent salivary fistula a thick saliva is poured out in small quantity by the mucous glands, not only for eatable substances, such as flesh, but also for substances refused, for example, salt, and in the latter case the quantity of saliva is less than in the first, the reverse of that happens under normal conditions. A similar result was shown by a dog with the chorda tympani nerve regenerating after section." These observations appear to show that neither theory is final. Very many other observations of great interest will be found in this, practically new, chapter.

The most considerable additions to the second edition will be found in Chapters X. and XI., which deal with the movements by which the food is carried through the alimentary canal from mouth to anus. These chapters are solely the work of Professor Thompson, and give a very complete and intelligible account of the present condition of our knowledge on this difficult subject. The experiments of Cannon made by Röntgen-rays after the man or animal has received food mixed with salts of bismuth, have thrown much light on many obscure points. These observations have been followed up and extended by many other experimenters, and are fully detailed by Professor Thompson. His account of the nervous mechanisms which regulate deglutition and the movements of the stomach and intestines is excellent. Indeed

we do not know any other account of the whole subject which is so concise, complete and accurate as that which the reader will find in these chapters.

Pavlov's work is so well known and so highly appreciated that it would be idle to dwell on its importance. The present translation, enriched by the translator's additions, will, we have no doubt, make it widely known in English-speaking lands.

The Principles of Gynaecology. By W. BLAIR BELL, B.S., M.D. Lond.; Assistant Gynæcological Surgeon, Royal Hospital, Liverpool. With 6 coloured plates and 357 illustrations in the text. Pp. 27 and 551. London: Longmans, Green & Co. 1910.

WE think Dr. Blair Bell would be well advised to omit a considerable portion of his preface. We hope he will excuse us if we say that he makes his readers think he must be very young when he says "that he does not believe that obscurity of expression and complexity of detail and arrangement are necessary attributes of any treatise, however learned." No one whose opinion is of any importance thinks otherwise, and both Dr. Blair Bell and his readers ought to know this. In other words, it is an unnecessary truism.

Then he goes on to say that he has "been obliged to cast aside the recognised method—time-worn and too honoured—of gynæcological compilation and to adopt a simpler and more logical arrangement." Dr. Bell's own book shows us that he has read sufficiently to know that he has adopted the arrangement followed practically by every gynæcological writer outside England. We who are outside England do not classify our subject-matter according to the symptoms of the patient, and Dr. Bell seems to give us to understand that he alone has heroically resisted such a temptation.

Passing from the preface, we heartily congratulate Dr. Bell on his work not alone because it is an admirable book, and entitled to stand in the best company, but even

more because he, obviously hampered with the teachings and restrictions of English gynæcology, has produced a book which, outside England, will be regarded as worthy of consideration.

Of course, if one looks for subjects of criticism, one finds them, as one finds them in every book that ever was written. Dr. Bell's good intentions were overcome by heredity, first when he both illustrated and recommended the use of the lateral position and Marion Sims' position in preference to the dorsal position when examining the patient, and, secondly, when he omitted to illustrate and describe the correct method of carrying out a bi-manual examination with the patient in the dorsal position. Is there a gynæcologist outside England and Scotland who to-day makes any use of Marion Sims' position, or who examines, as a routine, his patients while in the lateral position?

The definition of the terms "version" and "flexion" is hardly correct, as they are described as deviations from the normal direction or shape of the uterus. How can such a definition hold when "the normal position of the uterus is one of slight anteversion and very slight ante-flexion"? This is Dr. Bell's own definition, so he cannot plead that it is incorrect inasmuch as the normal position of the uterus is really one of marked anteversion. We tried to prove the latter from Dr. Bell's own illustrations, but we cannot find a single drawing of a sagittal section of a normal pelvis with the bladder and rectum empty. This is a serious omission.

Dr. Bell's criticism of Alexander's operation for shortening the round ligaments cannot be based on experience, and considering where the operation originated this is not right. Furthermore, the operation does not appear to us to be described according to Dr. Alexander's directions, and indeed it is no wonder that Dr. Bell is dissatisfied with it if he performs it as he describes it. Personally we have had a considerable experience of Alexander's operation, and find it uniformly satisfactory in all cases of backward displacement in which there is

no adnexal disease. It is adopted by gynæcologists almost universally over the Continent, and also to a very wide extent in America. It is an excellent operation of which Liverpool should be very proud.

Dr. Bell is on the right track, though his steps are still just a little encumbered by hereditary teaching "time-worn and too long honoured," as he says himself. Once he completely rejects it he will be like Christian and his bundle and able to go untrammelled on his way.

A System of Medicine by Many Writers. Edited by SIR CLIFFORD ALLBUTT, K.C.B., M.A., M.D., LL.D., D.Sc., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge, Fellow of Gonville and Caius College; and HUMPHRY DAVY ROLLESTON, M.A., M.D., F.R.C.P., Senior Physician, St. George's Hospital, Physician to the Victoria Hospital for Children, sometime Fellow of St. John's College, Cambridge. Vol. VII.—Diseases of the Muscles, the Trophoneuroses, Diseases of the Nerves, Vertebral Column, and Spinal Cord. London: Macmillan & Co. 1910. 8vo. Pp. xvi + 900.

THE new edition of "Allbutt's System of Medicine," as the work is familiarly called, is approaching completion. The seventh volume lies on our desk. The eighth volume is stated to be in an advanced state of preparation. It will contain the Diseases of the Brain and Mental Diseases. The ninth and final volume will be devoted to Diseases of the Skin.

The volume before us is especially rich in contents. The first section presents the most modern account of diseases of the muscles with which we are acquainted. Compared with the first edition it contains additional articles on Amyotonia Congenita (or "Oppenheim's Disease"), by Dr. James Collier; Myasthenia Gravis (or "Erb's Disease"), by Dr. Farquhar Buzzard; Family Periodic Paralysis, by Professor J. Michell Clarke; and the Neuritic Type of Progressive Muscular Atrophy, by

Dr. Frederick E. Batten. The last-named rare form of progressive muscular atrophy, which lies midway between the myopathic and the myelopathic affections, was first described by Charcot and Marie in 1886, and in that same year Dr. Howard H. Tooth, C.M.G., chose it as the subject for his Cambridge graduation thesis under the title "The Perineal Type of Progressive Muscular Atrophy." Dr. Tooth collected the recorded cases, among which were accounts of four necropsies by Virchow, Oppenheim, and Friedreich. In two of these spinal changes were absent, whilst in the other two there were changes in the posterior columns.

The second section of the seventh volume is devoted to the Trophoneuroses, the opening article being by Dr. Horace Geo. Turney, Physician to St. Thomas's Hospital. Sir Thomas Barlow, Bart., contributes two classical articles on Raynaud's Disease and Erythromelalgia—the "red neuralgia" first described by Weir Mitchell in 1872, and named in 1878. Dr. W. Aldren Turner writes on Facial Hemiatrophy and Hemihypertrophy.

Diseases of the Nervous System are introduced in Section III., Dr. Mott contributing an entirely new, admirable, and well-illustrated "Introduction to Neuro-Pathology." The illustrations include four coloured plates, besides many figures in the text. The other articles in this section are on Tremor, "Tendon-Phenomenon" and Spasm—the joint work of Professor C. S. Sherrington, of Liverpool University, and Dr. S. J. Sharkey, Senior Physician of St. Thomas's Hospital; and on Medical Ophthalmology by Sir William Gowers. This last monograph was written expressly for the second edition of the "System of Medicine," and fully justifies its title.

In the fourth section Diseases of the Nerves are dealt with. Here we find new articles on Diseases of the Cauda Equina by Dr. R. A. Fleming, Assistant Physician to the Royal Infirmary, Edinburgh, and on Diseases of the Sympathetic System by Dr. Gordon M. Holmes, Assistant Physician to the National Hospital for the Paralysed and Epileptic, London. With much propriety Dr. Henry

Head's classical account of Herpes Zoster has been transferred to this section from that on Diseases of the Skin—a subject which will be discussed in the forthcoming ninth volume.

Sir Victor Horsley and Dr. J. S. Risien Russell are the contributors to the section on Diseases of the Vertebral Column and the Spinal Meninges. The subject of which Sir Victor specially treats is compression-paraplegia. He discusses the question under the following headings:—(1) Seat of origin, and nature of the causes, of compression; (2) Symptomatology and diagnosis; (3) Site of the mischief; (4) Treatment.

The last section in the volume presents a full survey of Diseases of the Spinal Cord from the pens of many writers, including the late much-lamented Dr. C. E. Beevor, whose articles on "Motor Neuron Disease" and "Bulbar Paralysis" have been revised—the former by Dr. F. E. Batten and Dr. Gordon M. Holmes, the latter by Dr. F. E. Batten. A long account of myelitis has been completely rewritten by Dr. Frederick Taylor and Dr. Farquhar Buzzard. Dr. Leonard Hill has supplied a fascinating description of Caisson Disease—"compressed-air sickness"—and Dr. Purves Stewart a fresh account of senile paraplegia.

There are also additional articles dealing with sub-acute combined degeneration of the spinal cord, by Dr. James Collier, Physician to St. George's Hospital; familial and hereditary ataxia, by Dr. Gordon Holmes; syphilis of the spinal cord and its membranes, by Dr. Wilfred Harris, of St. Mary's Hospital; and tumours of the spinal cord, by Dr. Edwin Bramwell, who inherits his father's clinical and literary powers.

The foregoing gives an idea of the scope of the present volume. We regretfully notice that no Irish physician shares in the credit attaching to the work reflected in its pages. Scotland is well represented among the authors by George A. Gibson and Edwin Bramwell, the English provinces by Judson S. Bury of Manchester, Professor Sherrington, of Liverpool, and Professor J. Michell

Clarke, of Bristol. Even the United States sends to the Editors' help a worthy representative in Dr. M. Allen Starr, of New York, who writes on acute poliomyelitis and syringomyelia:

Pathologisch-anatomische Tafeln nach frischen Präparaten. Aus den Hamburger Staatskrankenhäusern. Mit erläuterndem anatomisch-klinischem Text. Unter Mitwirkung von weiland PROF. DR. ALFRED KAST, Professor der klinischen Medizin in Breslau, früherem Direktor der Hamburgischen Staatskrankenhäuser, weiter herausgegeben von PROF. DR. EUGEN FRAENKEL, Prosektor am allgem. Krankenhause Hamburg-Eppendorf, und DR. THEODOR RUMPEL, Oberarzt am allgem. Krankenhause Hamburg-Eppendorf. Vollständig in 26 Lieferungen. I.-XII. Lieferungen. Leipzig: Dr. Werner Klinkhardt. 1910. Folio.

[From the State Hospitals, Hamburg.]

Atlas of Pathological Anatomy (reproduced from recent specimens) with explanatory text, anatomical and clinical. By (the late) PROF. DR. ALFRED KAST, Professor of Clinical Medicine in Breslau, and formerly Director of the State Hospitals, Hamburg; PROF. DR. EUGEN FRAENKEL, Prosector at the General Hospital, Hamburg-Eppendorf; and DR. THEODOR RUMPEL, Senior Physician, the General Hospital, Hamburg-Eppendorf. With a Preface to the English Edition by J. LORRAIN SMITH, M.D., Professor of Pathology, University of Manchester. Translation by FRANCIS C. PURSER, M.D., Assistant Physician, Richmond, Whitworth, and Hardwicke Hospitals, Dublin. Part VI. Complete in 26 parts.

IN the spring of 1892 an *Atlas of Pathological Anatomy* appeared in monthly parts under the editorship of the late Dr. Alfred Kast, of Breslau. It consisted of drawings from nature by a distinguished Hamburg artist—Herr W. Gummelt—which were exquisitely lithographed in

colours by the Fine-Art firm of A. G. Wandsbek, of which Herr G. W. Seitz is director. This magnificent work is now in process of publication in five European languages—German, English, French, Russian, and Italian. The edition which has been entrusted to us for review contains four texts. A special French edition is in course of publication by Frédéric Gittler, of Paris.

From the preface to the English text by Dr. J. Lorrain Smith, now Professor of Pathology in the University of Manchester, but whom we may justly claim as a fellow-countryman, remembering his past connection with Queen's College, Belfast, we learn that the authors of this great work hope, by means of it, to be able to give others the benefit of their ample material for the study of morbid anatomy.

Of the twenty-six monthly parts, or fasciculi, which will make up the complete work, twelve have been placed in our hands. Each contains four fine plates in colour with descriptive letterpress in German, English, Russian, and Italian. The English edition is the handiwork of our fellow-countryman and fellow-citizen, Dr. Francis C. Purser, Assistant Physician to the House of Industry Hospitals, Dublin. The manner in which he has fulfilled his task is above all praise. The English text reads so smoothly that it is hard to realise that it is a translation from the German. In concluding the preface to the English edition, Dr. Lorrain Smith writes:—"Finally it is to be acknowledged that the English edition owes not a little to the care and ability with which Dr. Purser has translated the text."

The plates are chromographs from drawings by W. Gummelt. They are highly artistic and beautifully finished. Each bears as a title a brief Latin description in bold lettering. Unfortunately a few misprints have crept into these Latin titles, such as "subsequentes" for "subsequentes" (Part I.), "femaris" for "femoris" (Part IV.), "pulmonalis" for "pulmonea" (or "pulmonaria"). This last, however, is evidently not a printer's error.

Among the forty-eight beautiful plates in the first twelve fasciculi of this splendid Pathological Atlas none please us more than the representations of meningitis—acute, chronic, and secondary—in the tenth fasciculus, and those of the intestinal lesions of enteric fever in the eighth fasciculus. By the way, in describing the fourth plate in the latter fasciculus, Dr. Purser correctly translates the German “*lenteszierende*” (from the Latin “*lentesco*”) by the word “healing”—not “softening”—for the ulcers are seen to be cicatrised to a considerable extent.

When completed the work will contain fourteen drawings illustrating affections of the circulatory apparatus, thirty-one drawings of morbid conditions of the digestive tract, thirty-one of affections of the respiratory apparatus, twenty of lesions of the nervous system, nineteen of affections of the liver, pancreas, and peritoneum, twenty-four of morbid conditions of the urinary tract, thirteen of lesions of the osseous system, seven of affections of the spleen and lymphatic vessels, six of morbid states of the male genital organs, and eight of morbid states of the female genital organs—truly a goodly array of one hundred and ninety-four coloured drawings in all.

Enough has been stated to show that this Hamburg Pathological Atlas should find a place not only in every public medical library but also in every well-equipped private collection of classical medical works.

The cost of each part is five shillings net, and the plates may be obtained singly for one shilling and sixpence net.

Manual of Tropical Medicine. By ALDO CASTELLANI, M.D. (Florence), Privat-Docent (Naples); and ALBERT J. CHALMERS, M.D. (Vic. and Liv.), F.R.C.S. (Eng.), D.P.H. (Cam.). University Series. London: Baillière, Tindall & Cox. 1910. Demy 8vo. Pp. xxx + 1242.

THE authors of this text-book of Tropical Medicine are eminently qualified for their task. Dr. Castellani's name has become a household word among scientists at home

and abroad. In 1902 and 1903 he served as a member of the Royal Society's Commission on Sleeping Sickness in Uganda. As Professor of Tropical Medicine and Lecturer on Dermatology in the Ceylon Medical College, and as Director of the Clinique for Tropical Diseases in Ceylon, he occupies a position which gives him the right to speak and write with authority and from vast experience on the incidence of disease in the Tropics.

In Dr. Chalmers, Dr. Castellani has had an able and most competent coadjutor. In 1890 he won the Holt Fellowship in University College, Liverpool. He afterwards served for four years—from 1897 to 1901—as medical officer to the Gold Coast Colony, and subsequently as Pathologist to the General Hospital, Colombo. As Registrar and Lecturer on Pathology and Animal Parasitology in the Ceylon Medical College he has had opportunity to turn to practical account his personally-acquired knowledge.

The work is divided into three parts. In an introductory section, running to eighty-four pages, the authors give a brief history of medicine in warm climates from the earliest times to the foundation of Schools of Tropical Medicine in London, Liverpool, Paris, Hamburg, Lisbon, Naples, and elsewhere. Chapter II. is on Tropical Climatology. Chapter III. discusses the effects of tropical climates on man, and Chapter IV. contains general remarks on the incidence of disease in the tropics. The account in Chapter III. of the production and regulation of body heat in man and the effects of atmospheric temperature and humidity upon it, is admirable, and in the same chapter the effect of light is also well described.

By the way, in these introductory chapters we meet for the first time with the extraordinary word "agchelostome," which stands for the parasite ankylostome, discovered by Dubini in 1843. At first sight we thought the word was the result of a printer's error, and of a mis-spelling "ch" for "k"; but on consulting the index and referring to the text throughout the book we found that the spelling was deliberate. Surely the

authors are aware that the Greek γ (gamma) occurring before γ , κ , or χ is represented in Latin and in modern European languages by "n," which was certainly the sound imparted to it by the Greeks themselves. Do the authors propose to spell "angel" "aggel"? Do they forget that "angina" in Latin stands for the Greek $\alpha\gamma\chi\acute{o}\nu\eta$? Again, "ch" is a mis-spelling. The Greek word is $\alpha\gamma\acute{\kappa}\acute{\upsilon}\lambda\eta$, from which comes another mis-spelling, "an chylosis" for "ankylosis."

Part II. introduces the special subject of the causation of disease in the tropics. It includes three sections, dealing respectively with the physical, chemical, and biological causes of disease. The most important element in physical ætiology is high atmospheric temperature, which leads either to "thermic fever," characterised by high bodily temperature, or to "heat syncope," in which there are symptoms due to cardiac failure but no fever. Both of these clinical conditions, in the experience of the authors, may also be caused by rays coming directly from the sun—in other words, it seems possible that direct sunlight can bring about (1) sudden death, and (2) congestion of the meninges of the brain. Such are the authors' views. They believe neither in Sambon's "siriasis" nor in the miracle of the restoration to life of the son of the Shunammite woman by the prophet Elisha. "The child complained to his father of his head when out with the reapers, and was carried to his mother, and *is reported to have died at twelve noon—became insensible—but recovered under Elisha's treatment*, which appears to have been of the nature of massage"! In the Bible story it is distinctly stated that the child died, and that when Elisha arrived "the child was dead, and laid upon his bed."

Section B. of Part II., on the Chemical Causes of Disease, is an important contribution to the literature of toxicology. It includes five chapters, three of which are concerned with venomous animals. Judging by the bibliographical references at the end of each of these three chapters, contemporary literature has been freely

consulted. The best general references, as given at page 151, are:—Calmette (1907), *Les Venins* (Paris); Faust (1906), *Die tierische Gifte* (Braunschweig); and Wells (1907), *Chemical Pathology*.

In Section C. of Part II. the biological causes of death are discussed under the headings Animal Parasites and Vegetal Parasites. And here again, but especially, the authors have accumulated an enormous amount of material—390 pages of print being given up to the fullest catalogue of animal parasites which it is possible to conceive, from *Entamæba* to *Rats*. In Chapter XXII. the vegetal parasites are much more briefly dealt with, only the non-bacterial fungi being described on the ground that “the study of bacteria forms a special branch of science, on which numerous works and text-books are available.” In their account of Tropical Diseases, which forms Part III. of the book, the authors of course allude to the bacteriology of certain infections, such as cholera, plague, leprosy, and undulant fever.

The most remarkable point about Part III. is the singularly scanty allusion which is made to “Cosmopolitan Fevers in the Tropics.” Typhoid fever is disposed of in fourteen lines of letterpress at pages 800 and 802. This is all the more strange in view of the statement that “at the present time the tropical practitioner has far more experience of the disease than his Temperate Zone colleague.” The authors believe that “this disease is probably mainly spread by flies and contaminated milk, while the bacilli are spread all over a town by means of ‘human carriers,’ especially where sanitation is defective.” Another statement greatly interested us, namely—“In most cases the temperature does not run the typical course described in text-books on general medicine, having sometimes a high remittent type, and at others an intermittent type, while *cases of mixed infection with malaria are not rare.*” We have italicised the closing words of the quotation because the propriety of the term “typho-malarial fever” has been called in question. Attention was drawn to this form of disease more par-

ticularly by Dr. J. J. Woodward, Surgeon, United States Army, in a paper published in 1876 in the "Transactions of the International Medical Congress," which assembled at Philadelphia in that year. Curiously enough, a detailed account of typhus fever is given, although in small type (pages 802-806). Like Part II., there are three "Sections" in Part III. Section A. deals with fevers, Section B. with general diseases, and Section C. with systemic diseases.

A feature in this volume is the profuse way in which it is illustrated. There are fourteen coloured plates, and no fewer than 373 illustrations (including temperature charts) are interpolated in the text.

The work is less clinical than Sir Patrick Manson's well-known "Tropical Diseases," but it forms a veritable Encyclopædia of Tropical Medicine, and, as such, it should find a place in the library of every cultured physician.

QUEEN'S UNIVERSITY, BELFAST.

SUMMER EXAMINATIONS, 1910.—M.B., B.Ch., and B.A.O. Degrees:—First Class Honours—Robert A. Kerr (first scholarship, £20, and special scholarship in midwifery, £30), Harold Black (special scholarship in medicine, £30). Second Class Honours—C. Irwin Melville (special scholarship in surgery, £30). Pass—Victor L. Connolly, Francis P. Ferran, Samuel K. M'Kee, T. P. M'Murray, Harold D. Manderson, Charles J. Simpson, Walter Stevenson, Robert S. Taggart, Robert W. Vint. Passed in Pathology, Medical Jurisprudence, and Hygiene—Philip J. Gaffikin, George Shaw Glass, Robert J. M'Feeters, U. J. G. Mulligan, E. F. Ward. Passed in Medical Jurisprudence and Hygiene—William Boyd. D.P.H. Diploma—William Burns, L.R.C.P. & S.E.; William Godfrey, M.B.; Brian O'Brien, M.B.; James Shaw, M.B.; Andrew Trimble, M.B. M.D. Degree (by Thesis)—James Stuart Dickey (gold medal), Samuel Hamilton (with commendation), Robert Foster Kennedy (with commendation), Marion B. Andrews, Denis J. Collins, Hugh M. M'Crea, Ernest H. M. Milligan. M.D. Degree (by Examination)—W. A. M'Kee.

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF SURGERY.

President—J. LENTAIGNE, P.R.C.S.I.
Sectional Secretary—A. J. BLAYNEY, F.R.C.S.I.

Friday, March 11, 1910.

DR. STOKES in the Chair.

Unusual Fracture of the Tibia and Fibula.

MR. W. S. HAUGHTON read a paper on a case of fracture of the tibia and fibula, treated by screw-plating. A lad of sixteen years fell through the floor of a mill, and, alighting on one foot, fractured both bones of the leg transversely some two inches above the ankle-joint. Total eversion of the foot was produced, so that the sole looked upwards. All justifiable efforts at reduction and treatment in plaster of Paris proved ineffectual, as shown by X-ray examination, so a screwing operation was done. Steel plates were specially made to measure on the skiagrams, and one was applied to each bone, that on the tibia being Y-shaped. He (Mr. Haughton) alluded to the points of general interest in the modern operative methods of treating fractures, laying special stress on two—(1) The desirability of using every reasonable effort to reduce fractures before advising operation, testing the result in every

case by X-rays; (2) the absolute necessity of preserving strict asepsis throughout operation by keeping screws, plates, drills, screw-driver, &c., boiling all the time in the steriliser till the moment for using same. The features of special interest were then alluded to, and demonstrated by means of stereoscopic skiagrams. The boy walked well, and the result was good.

MR. A. J. BLAYNEY said the case added another to the series showing the excellent results now obtained by the operative treatment of fractures. But he thought there was a slight tendency to regard every fracture as being necessarily treated by operation, and there were some things still to be said in favour of the treatment of fracture without operation. There was a considerable number of cases in which it was possible to obtain and keep reduction without the use of any mechanical appliances further than external apparatus, and the absence of pain observed after operative measures could also be obtained without operation. In cases, however, like that before them, and in fractures of the femur, there was no doubt the use of splints would not give anything like satisfactory results. On the question of interference with the growth of the bone, if growth continued, a certain amount of longitudinal strain would come, and he was inclined to think that the boy would be better without the plate.

DR. STEVENSON thought Mr. Haughton had hardly laid sufficient stress on the way in which, with an X-ray photograph, it was possible to estimate with accuracy where to make the incision and where to find the fragments with the least delay. He had assisted at the operation, and before Mr. Haughton cut the skin at all he was able to show the position in which the plates were to go.

DR. STOKES asked for some more information on the making of the holes in the shaft of the bone at right angles, also as to the way in which the foot was inverted. He did not see why the screw in the epiphysis should give any trouble.

MR. HAUGHTON, in reply, said he would consider the taking out of the Y-shaped plate if pain occurred, and the X-rays showed evidence of rarefying osteitis; but he believed that if growth took place it would be very slow, and the pressure on the bone would cause an absorption which would allow the screw to pass upward, and a corresponding deposit of bone would occur on the opposite side. When dealing with a triangular bone by wire, if they put two wires parallel they would have a hinge in which

bending displacements were possible, while lateral displacements were not possible; some slight torsion displacement was also possible. To check that they should have at least two wires passing through the bone transversely, which would give greater rigidity than if the wires were parallel. He did not know in what position the foot struck the ground, but the sole was turned upwards through 180° .

A Case of Thrombosis of the Lateral Sinus with Resection of the Jugular Vein.

MR. O. GOGARTY reported this case in order to show the importance of considering the possible presence of disease of the middle ear in the diagnosis of obscure cases. The patient had been supposed to be suffering from gastric disturbance when vomiting was marked, and later from stone in the kidney when great hæmaturia occurred, and did not seek admission to hospital until the disease had been present for six days. Temperature on two occasions had been 105° , and rigors had occurred before admission. The prominent feature of the case was the total absence of localising signs. Edema over mastoid, Griesinger's sign, tenderness over jugular cord, and stiffness of the neck were missing; though the presence of pyæmia made the case all but hopeless, it was decided to give the very slender chance of recovery by operation. A clot nearly two inches in length was removed from the lateral sinus after a considerable portion of the internal jugular vein had been resected. The patient lived only two days, dying of pyæmia, with a rash and well marked jaundice.

DR. DEMPSEY said they should be grateful to Mr. Gogarty for showing a case which was not an operative success. Lateral sinus thrombosis was much more commonly met with since the radical mastoid operation had come into vogue. The great difficulty was the question of diagnosis in certain cases, and in dealing with such he thought they should be guided by what they met with when treating the case. He had seen a case in which the diagnosis was typhoid fever that developed some discharge from the ears. He cut down on the mastoid, and found extensive bone disease. He did the ordinary operation, and the patient was much better for several days. Then came a temperature of 105° and sharp rigor, suggesting lateral sinus disease. He reopened, but found things as at first. The same symptoms recurred for three weeks about

four times a week, but further operation was refused, and yet the patient got steadily well, and was now in perfect health. In another case, in which the radical mastoid operation was performed, the patient also developed a high temperature and rigor. The lateral sinus was exposed, and showed a surface greyish, and breaking down, with the emission of pus. The jugular vein was tied in the neck, and the sinus was freely opened with free hæmorrhage. The patient died, and the trouble was found to be a cerebellar abscess. If one met with a vein clotted down in the neck, it should be cut down on and the vein excised; but if one found the sinus filled with clot in the region of the mastoid, the question arose as to whether the internal jugular should be tied at all or not. Opinions were about equally divided. Cases in which it was not tied had done just as well as if the ligature had been effected. But the test was hardly a fair one, as the cases of tying were practically desperate cases which were given a last chance.

DR. HARVEY sympathised with Mr. Gogarty in his brave endeavour to save the patient's life, but the patient had been infected several days before the operation, and the diagnosis was very difficult. Mr. Gogarty's procedure was very wise, and he would like to know what were the indications as to when the internal jugular should be opened.

MR. W. S. HAUGHTON said it was from such cases very often that they learned most. He had operated on five cases of suspected thrombosis, in three of which the condition was found, and death followed. In the other cases there was no apparent thrombosis, and death followed. He did not ligature the internal jugular, but he was inclined to think it should be done oftener than it had been done. In a case which was not septic, he adopted a trephine opening, and cut into the lateral sinus. Severe hæmorrhage followed, and he was obliged to plug. Six days later he reopened and removed the plug, and no hæmorrhage followed. He had, however, given up the trephine, as he found the broad gouge did the work more safely.

MR. WM. TAYLOR said he had seen the swelling which was found along the jugular vein to be due, not to an infection of the vein, or thickening, or clot, but to an infection of the glands. Where they could easily recognise on palpation the cord-like swelling described in the books, it was too late; but there was one chance in five hundred which should be given to the patient.

Where there was the smallest suspicion of any intra-cranial complication, operative interference should be undertaken at an early stage. In the combination of two intra-cranial complications due to ear disease, the difficulty of diagnosis was greatest, and he believed that septic sinus infection predominated. He had seen a case in which the phenomena of cerebellar trouble did not manifest themselves until some twenty-four or thirty-six hours after the lateral sinus had been opened. Cases of sinus infection, where there was not a clot, were, he felt, far more dangerous than those in which there was, and he would be inclined to ligature the jugular, even though the infection might be carried by other channels. He would have no hesitation in doing so where there was clear evidence that the sinus was infected; where there was a doubt, he would expose the mastoid and the lateral sinus, and deal with the condition as he found it.

MR. PEARSON asked what were the indications for operating on obvious ear cases, where pus was found under tension in the mastoid without any definite evidence of other complication at the time. He recalled a case in which the radical mastoid operation was done. After the operation the patient appeared to be very well, but temperature rose later to 103° , and a blood-count showed a marked leucocytosis. The patient became very dull, and answered questions slowly, but there were no other symptoms. The patient was reopened, and a large temporo-sphenoidal abscess was found with pus under very high tension. He felt certain the abscess was present at the first operation, but that it had passed the stage at which it gave the symptoms for which they were on the look-out.

MR. GOGARTY, in reply, referred to the question as to when the jugular vein should be resected in the case of thrombosis of the lateral sinus. In his opinion, although he knew that many thrombi had been successfully removed without ligaturing or resecting the vein beforehand, it was better to ligature the vein if it was decided to open the sinus when the surrounding parts were septic; and to resect the vein in case of thrombosis of the jugular bulb, or whenever it seemed probable that the vessel wall might be itself a carrier of infection.

SECTION OF OBSTETRICS.

President—HENRY JELLETT, M.D., F.R.C.P.I.

Sectional Secretary—GIBBON FITZGIBBON, M.D., F.R.C.P.I.

Friday, April 1, 1910.

THE PRESIDENT in the Chair.

Ruptured Ovarian Gestation.

The following Communication from the Committee of Reference was received :—

DR. ROWLETTE said the specimen consists of an oval blood-clot, three inches long in diameter, to which is adherent a small piece of tissue, partially embedded in clot. The outer surface of the clot is laminated, and the coats peel off readily. On cutting through the specimen, the tissue is found to be tough, greyish-pink in colour. Between it and the clot is a bright yellow band, one inch long by three-eighth inch broad, obviously the wall of a ruptured corpus luteum in which the clot must have formed.

Microscopically.—The grey tissue is ovarian tissue, with a partial covering of peritoneum; the yellow band consists of typical lutein cells; in the clot near the yellow band are numerous chorionic villi. No embryo was discovered.

The specimen is one of pregnancy, the ovum having developed in a Graafian follicle.

“We have examined the specimen described by Dr. Rowlette in the accompanying manuscript, and are of opinion that the case is one of ruptured ovarian gestation. The possibility of its having been tubal or tubo-ovarian is excluded by the fact that the tube was found to be normal and separate from the ovary at the operation. From the close relation of the foetal structures to the lutein cells, it appears probable that the impregnation took place in a Graafian follicle, from which the corpus luteum subsequently developed.—H. C. EARL, A. C. O’SULLIVAN, H. JELLETT.”

(a) *Sarcoma of Body of Uterus.*

(b) *Carcinoma of Body of Uterus.*

DR. JELLETT exhibited specimens of the above by way of contrast. The patient in the first case was a girl, aged twenty.

Her symptoms were frequent and heavy menstruation, and a considerable amount of leucorrhœa almost entirely of pure pus. Examination showed the uterus to be considerably enlarged and very nodular. He passed a Bozeman's catheter and washed away a considerable amount of pus situated at the upper part of the uterus. The diagnosis was apparently myoma, but he thought it might possibly be a case of sarcoma. As against myoma was the age of the girl. The operation presented no particular features. He did a supravaginal hysterectomy, leaving a portion of the cervix. There was a tumour in the right broad ligament lying between the hilum of the ovary and the uterus. After removal the condition of the endometrium as shown in the specimen was plain to be seen. There was enormous proliferation apparently of mucous membrane all over the upper surface, and on the posterior wall a nodule almost like a myoma which had lost its blood supply. On examination it was proved to be sarcomatous. The uterine wall was extraordinarily thick. At first sight the specimen gave one the impression of recent parturition. A section through the uterine wall showed nothing but muscular tissue, and he did not know how to explain the thickening. The patient made an excellent recovery. He had not removed the remainder of the cervix, as the malignant growth was entirely separated from it by an inch and a half of tissue.

The second specimen was from a woman, aged about fifty-five or sixty years. She had gone into hospital complaining of profuse discharge. He found a large uterus, also nodular. He washed out the uterus and found great retention of pus. On scraping with a blunt curette he brought away a lot of sloughing growth. The scrapings were carcinomatous. On opening the abdomen he found the uterus comparatively free. There was very little extension of the growth in the neighbourhood of the cervix, and the fundus was entirely free. But on the left side there was a growth extending up into the pelvic glands behind the peritoneum. This he thought he was able to extirpate. On the other side there was a similar extension. The glands all along the aorta were enlarged. He removed them to the level of the second lumbar vertebra. He removed the uterus and a good deal of the vagina. The uterus lay low in the pelvis, and when he cut across the vagina he was within an inch of the vulva. The condition of the patient after the operation was fairly satisfactory, and he thought he would try to take away another gland

higher up. He split the peritoneum further along the ureter, and found the remaining gland firmly adherent to the lower vena cava. The patient gradually got weaker, and died in a couple of days. The case was one of long standing, and he thought her heart muscle was weak. There were no obvious symptoms of sepsis.

DR. PUREFOY said the case of sarcoma was, in his experience, quite without parallel. He would watch for the subsequent history of the case, as he himself had had a patient aged sixty-five who died of secondary disease in the left lung a few months after he had removed a large fibrous uterus, which for thirty years had caused inconvenience only by its size. He did not remove the cervix. With regard to the second case, it was admitted that a proportion of the enlarged and hardened glands, the appearance of which suggested malignant disease, did not really contain it. Nevertheless, any of them who had such a case would, no doubt, endeavour to remove the glands as completely as possible. In the case of an aged patient, they had to consider whether they were warranted in carrying out a prolonged operation for the complete removal of all the enlarged glands they could feel.

DR. JELLETT, remarked that Sir William Sinclair, on his recent visit, had said to him that he was in the habit of telling his class that cancer of the body of the uterus occurred only in comparatively well-to-do cases, and cancer of the cervix in very poor patients. Sir William's idea was that the only way to prevent cancer of the cervix was by improving the conditions under which the patients lived. In his (the speaker's) experience the rule did not apply in Ireland.

DR. HOLMES said that, looking back on the cases in the Rotunda, the number in the extern dispensary of cervical cancer seemed to him to be more numerous than the house cases. Neglect of discharges might set up disease, but the upper classes, if anything went wrong, generally had the matter seen to.

DR. PUREFOY said his experience did not correspond with Sir William Sinclair's. He would like to know if, from inspection of the sections, it was possible to determine whether the sarcoma had occurred in the connective tissue or muscular cells.

DR. JELLETT said that there was a doubt in the mind of Prof. O'Sullivan, who reported on the specimen, as to its origin in the ovary. Prof. O'Sullivan's report is as follows :—

“ The uterus was large, the body being four inches in length

and the wall a little over an inch thick at the thickest part. The upper two-thirds of the cavity were filled by an irregular growth, with numerous polypoid excrescences projecting into the lumen. The surface of the growth was acutely inflamed and partially necrosed, and covered in places with a thick layer of pus, which contained a variety of organisms—bacilli and cocci. The growth could be seen to infiltrate the posterior wall of the uterus, and secondary nodules could be felt in the upper and posterior part of the wall. The ligament of the ovary was also infiltrated, and the ovary itself was converted into a mass, partly nodular and partly cystic. Under the microscope the tumour showed a very cellular structure, spindle and large round cells with numerous nuclear figures. The solid tumours in the ovary had a similar structure. A large nodule lay in the upper uterine wall, which was of a dull grey colour on section, and proved to be of similar structure.”

Suppurating Ovarian Cyst with Tubercular Pyosalpinx.

DR. FITZGIBBON exhibited this specimen. A girl, B. N., aged nineteen, had four years ago tubercular disease of a finger, which was amputated. Her menses, which had always been regular from the time they commenced, ceased in November, 1909, and shortly after that she developed a cough, and had several attacks of vomiting, accompanied by pain in the abdomen. She was admitted to Mercer's Hospital on January 3, 1910, and the speaker first saw her about the end of January. She then had an irregular temperature, varying between 99° and 101°, and pulse from 95 to 110. She had ceased to vomit, but complained of acute pain in the abdomen, and was very constipated. A tumour could be felt extending to one and a half inches from the umbilicus. On vaginal examination the pelvis was found to be filled up by a cystic tumour, which was fixed, and which pushed the uterus upwards and forwards. The left appendages could be felt apparently normal, but the tumour prevented any examination of the right side of the pelvis. The patient was kept in bed and the bowels were freely acted upon, and then the temperature improved, but the pain continued to be severe. On March 1st the abdomen was opened, and an ovarian cyst was found springing from the right side and firmly adherent all over the back of the pelvis. The intestines were completely shut off by the omentum. In freeing the cyst from the pelvis it ruptured, and discharged

about two pints of purulent contents. The left tube was greatly thickened and adherent, also containing pus. By working down the left side of the uterus and then dividing through the vagina the right appendages were shelled out. The left tube which was removed was perfectly normal, and the left ovary was retained in situ, as it seemed quite healthy. The pelvis was drained through the vagina with iodoform gauze passed from above down, and only iodine catgut was used throughout. Cultures were made from the pus in the tube immediately after the operation with a view to making an autogenous vaccine if the case developed into one of acute sepsis, as was anticipated from the amount of pus which unavoidably got about the pelvis; also saline enemata, two pints, were given every two hours for two days. The temperature rose after the operation to 102° - 103° , and the pulse to 130 to 140, and remained fairly steady for the first four days, when they began to improve, and have since remained from 99° to 101° and 100 to 120. The lower inch of the abdominal wound opened and discharged a foul-smelling pus for about ten days, and is now granulating, while the pus from the vagina went through the same stages. The patient looks better, is free from pain, but continues the high temperature and pulse. The report received on the specimen was that the cultures contained no pyogenic organism, and except a bacillus which resembled *B. coli* the pus did not show any other pyogenic organisms. Sections made from the wall of the ovarian cyst proved to be tubercular, while the left tube was normal. The ovarian tumour showed a large single cavity, strongly suggestive of an abscess, and in no way resembling an ovarian cystoma.

DR. PUREFOY said he understood there was no evidence of gross uterine disease, and the removal of the uterus did not commend itself to him as the best proceeding under the circumstance. It increased the area in which infection might take place, and it was a serious loss to a patient at the age of the case. He thought an adequate opening might have been found in Douglas's space.

DR. ROWLETTE said the association of tuberculosis and cystic growth in the same ovary was, he thought, very rare, though one saw frequently tuberculosis of the tube associated with a certain kind of cystic growth of the ovary. It was indeed rare for any tumour to become infected by tuberculosis. He thought the cyst was really an abscess cavity.

With regard to the President's specimen, it seemed

to him to be an advanced case of sarcoma starting in the endometrium. He should say the nodule was sarcoma from the beginning. The fact that the uterus was so large showed, he thought, a good deal of resistance on the part of the patient, and that the growth was not very rapid. The fibrosis must have been a reaction to the growth of the tumour, which would be encapsuled to a certain extent.

DR. JELLETT, speaking on Dr. FitzGibbon's specimen, said he had never before heard of a specimen of tuberculosis of an ovarian cyst, and the first thing to know was the nature of the cyst. If it was purely an abscess starting in the ovary, then the tubercular infection would not be quite so unusual. But, if it was a proliferating cyst of the ovary, he did not know that he had ever heard of such a condition being recorded before, and he thought Dr. FitzGibbon should be asked to give them some further information at a later date.

DR. FITZGIBBON, in reply, said the section showed typical tubercular infection, but he did not think any one could say definitely that it was from a proliferating ovarian cyst, in fact the inner surface of the section did not show anything to suggest ovarian cystoma, but strongly resembled the lining of an abscess cavity. He thought the case, now that he had obtained and seen a section of the tumour, was one of tubercular ovarian abscess. In reply to Dr. Purefoy, he said the condition of the patient appeared so bad, and such a quantity of pus had escaped about the pelvis, that he thought the only chance was to obtain absolutely free drainage, and that this would be best by removal of the uterus, even then he hardly expected the patient to survive.

Our Responsibilities in the Prevention of Inherited Syphilis.

DR. SPENCER SHEILL read a paper on the above subject. It is published in full at page 15.

DR. FITZGIBBON agreed with the statement as regards syphilitic infants being born perfectly healthy. It was still very undecided as to when infected people were free from the infection, as close examination might show that persons who were supposed to be undergoing continuous medication had missed a large number of doses. The old method of giving drugs by the mouth necessitated great trust in the patient, but the present method of injection enabled one to tell whether the patient had kept up the treatment.

DR. SOLOMONS said there was a baby born in the Rotunda that evening whose mother had had two six-month babies before, and there was a definite history of her having contracted syphilis from the husband. At the beginning of the present pregnancy she came into hospital and started a course of mercury and potassium iodide. She took it regularly in fluid form, and the baby was quite healthy and strong.

DR. SEYMOUR STRITCH said they could not lay down a fixed date, in acquired syphilis, for permitting marriage in both sexes. It was generally taken that man could not infect the ovum after six years, whether he had treatment or not, but woman, he thought, might do it as long as she was capable of childbearing. Ordinarily syphilologists did not like to let the innocent parent know of the condition, as it set up disunion in the family, but they must use discretion. Opinion was divided as to whether a man could infect the ovum at all, as the spirochætæ are supposed to be too large to be carried in the sperm. Some believe that spores, or some resting stage of the spirochæte might be so conveyed, should such conditions be discovered in the life history of the specific organism.

DR. PUGIN MELDON thought the father always infected the mother first without directly infecting the fœtus. The time for the development of congenital syphilis varied very considerably: he had seen a child which was healthy for fifteen years. He did not think the form in which the mercury was taken mattered, but it was important to see that the mercury was absorbed and really passing through the system by periodic examination of the urine.

DR. ROWLETTE said it was extremely difficult to say that a child was *free* from syphilis. If one searched for the spirochæte he thought there was no doubt it would be present in great numbers in the liver in cases of congenital syphilis, but the pathologist was not often asked to make such an examination: he was usually asked only to look for gross signs, which might not be at all distinctive. The gross sign on which he relied most was the change that took place in the line between the cartilage and the bone at the end of the long bones, particularly at the lower end of the femur. If one opened the knee-joint and split the bone, one found a very distinct broad white or yellowish band if syphilis were present, inflammatory in origin probably, the cartilage and the bone infiltrating each other.

In the healthy child there was a perfectly clean line. But in some cases of congenital syphilis that sign was not present. Generally the liver was enlarged in congenital syphilis; but in some cases it was found shrunken and very small, and with a large and strong fibrous capsule. While the positive diagnosis of syphilis could sometimes be readily made, it was much more difficult to make a negative diagnosis without definite examination for the spirochæte.

DR. PUREFOY said he had ceased to make inquiries from parents as regards syphilis, as the truth was not likely to be told, and he thought it was better to be guided by the clinical history of the case, and to give mercury guardedly. In such cases it was important to be quite clear that there was no kidney disease. He thought the old-fashioned "snuffles" was generally fairly good evidence of congenital syphilis. A very interesting evidence of congenital syphilis was the form of pemphigus which developed on the palms and soles of the feet of syphilitic infants in the first three months.

DR. JELLETT thought that if one wanted to secure the greatest possible immunity to the ovum one should treat both father and mother. There were a number of conditions that appeared to occur more frequently in syphilitics than in others, such as malformations in which there might or might not be obvious syphilis. Might there not be some disease of the ovum transmitted from the father, some consequence of syphilis, that might be transmitted to the ovum independently of the presence of the spirochæte? It seemed to him that the foetal liver was always so large in comparison with the size of the infant that a very great increase of size would be needed in order to appreciate the fact that it was morbidly enlarged.

DR. SHEILL, in reply, said he had not noticed any undue proportion between the weight of the foetus and placenta. He believed it was quite possible to become able to recognise during life in a certain proportion of cases a decided enlargement of the liver in syphilitic infants. He thought it was quite possible for syphilis to be transmitted from the father to the ovum without any demonstrable lesion on the part of the father. Unless the father had an open sore, he did not see how he could first infect the mother, as Dr. Meldon had said. Of course the sperm, if sufficiently large to contain one of the organisms, might first infect the mother

presumably through the mucous membrane, and she might infect the ovum through her own system. But if the sperm was able to carry one of the organisms at all, it was much more likely to go directly to the ovum. If mercury was pushed to the point of salivation, he did not think it was necessary to test the urine. He thought it was a gross injustice to a child if one or other of the parents was not informed of the state of affairs. In later years there might be many effects, and a confession to the doctor might save the child from severe constitutional trouble by wrong treatment. Dr. Solomons had better wait a while to be sure that the child born that evening was really free or not. As regards the administration of drugs, injections were very much better from the therapeutic point of view, but tabloids were easier to take secretly. They should adopt the most efficient form for the particular patient.

DR. STRITCH remarked that the infection might be carried by the seminal fluid.

Parturition Depressed Fracture of Parietal Bone.

DR. SOLOMONS showed, for the Master of the Rotunda Hospital, a specimen of a fractured skull which had been raised by means of one blade of an American bullet forceps. He said that the case occurred in a quartipara, who gave a history of her previous babies having had "dents" in their heads. Her pelvic measurements were—interspinous, 27 cm.; intercostal, $28\frac{1}{2}$ cm.; external conjugate, 17 cm.; conjugata vera, $6\frac{1}{5}$ cm., transverse of inlet, $13\frac{3}{10}$ cm. Prolapse of the cord occurred when the membranes ruptured, and version was performed and the child delivered. When born it was found that there was a depressed fracture of the right parietal bone. This was raised as follows:—The point of a sharp bullet forceps was placed in the centre of the depression, the forceps was turned through a right angle, and then raised; it was easily to be seen in the specimen that the cure of the fracture was complete. This method, which was first performed by Dr. Tweedy, had been carried on in the Rotunda Hospital with uniform success. In this case the infant became jaundiced soon after birth, and died on the third day. There was no paralysis. A *post-mortem* examination revealed nothing except the mark of the bullet forceps in the brain to the extent of possibly one-eighth of an inch, and evidently this had nothing whatever to do with the death of the child.

DR. NEILL said he had seen a deep dent in a child which was born alive, and spontaneously recovered without interference.

DR. JELLETT asked if it was the practice to lift all dents with bullet forceps.

DR. PEARSON said the skull of a new-born child was a very pliable structure, and might not require any treatment to elevate a fracture. From a surgical point of view the objection which he saw was the possibility of injuring a meningeal vessel.

DR. HOLMES thought any noticeable depression ought to be raised. He had used the method several times, and the children did very well.

DR. FITZGIBBON said there was a hæmatoma between the dura mater and the parietal bone, not very extensive, and he asked if the bullet forceps had punctured the dura mater.

DR. SOLOMONS, in reply, said all depressions of any import were raised. There was a puncture in the dura mater when the specimen was fresh.

LITERARY INTELLIGENCE.

MUCH interest is sure to be aroused by the announcement of a new book by Dr. Berry Hart, of Edinburgh, entitled "Some Phases of Evolution and Heredity," which Messrs. Rebman, Ltd., will issue very shortly. In the work the chief mechanism of evolution—namely, Darwinism, Weismannism, and also Mnemism—are critically considered in modern lights. Mendelism is especially gone into, and a new scheme as to Mendel's crossing experiments is suggested. It seems to clear up some of the difficulties. A new theory of evolution and its transmission is described, showing that probably these two processes are intrinsic and not effected by outside conditions so much as is generally held, and that Biometric work must take a high place in future in these questions. In the remaining chapters the questions of the bearing of modern views and those of Heredity, &c., are briefly taken up. Bee life in the light of evolution, and especially in the Observation Hive, is considered and illustrated.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, July 16, 1910.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended July 16, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 15.7 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, July 16, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality :—

Towns, &c.	Week ending				Average Rate for 4 weeks	Towns, &c.	Week ending				Average Rate for 4 weeks
	June 25	July 2	July 9	July 16			June 25	July 2	July 9	July 16	
22 Town Districts	17.9	16.1	17.0	15.7	16.7	Lisburn -	9.1	13.6	13.6	9.1	11.4
Armagh -	6.9	6.9	20.6	20.6	13.8	Londonderry	12.0	7.2	20.4	6.0	11.4
Ballymena	4.8	9.6	19.2	23.9	14.4	Lurgan -	17.7	4.4	8.9	8.9	10.0
Belfast -	20.9	18.3	19.3	18.1	19.1	Newry -	29.4	16.8	12.6	25.2	21.0
Clonmel -	25.6	20.5	10.3	20.5	19.2	Newtownards	11.4	5.7	17.2	11.4	11.4
Cork -	18.5	17.8	13.0	18.5	16.9	Portadown	20.7	5.2	10.3	5.2	10.4
Drogheda -	28.6	16.3	16.3	4.1	16.3	Queenstown	13.2	26.4	26.4	6.6	18.1
Dublin -	15.5	15.3	16.8	14.8	15.6	Sligo -	14.4	33.6	9.6	19.2	19.2
(Reg. Area)						Tralee -	10.6	5.3	15.9	21.1	13.2
Dundalk -	16.0	4.0	16.0	19.9	14.0	Waterford	19.5	15.6	15.6	19.5	17.5
Galway -	15.5	27.2	19.4	15.5	19.4	Wexford -	18.7	14.0	9.3	9.3	12.8
Kilkenny -	29.5	4.9	14.7	—	12.3						
Limerick -	19.1	20.5	10.9	12.3	15.7						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, July 16, 1910, were equal to an annual rate of 1.6 per 1,000, the rates varying from 0.0 in sixteen of the districts to 4.5 in Lisburn, one of the 2 deaths from all causes for that district being from diphtheria. Among the 136 deaths from all causes registered in Belfast are 20 from measles, one from whooping-cough, one from diphtheria, and 2 from diarrhoeal diseases. Of the 27 deaths from all causes registered in Cork, 2 are from enteric fever. One death from measles is included in the 5 deaths from all causes registered in Londonderry, and of the 10 deaths from all causes registered in Waterford one is from typhus.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 402,928, that of the City being 310,298, Rathmines 37,047, Pembroke 28,948, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, July 16, 1910, amounted to 272—123 boys and 149 girls; and the deaths to 118—55 males and 63 females.

DEATHS.

The deaths registered represent an annual rate of mortality of 15.3 in every 1,000 of the population. Omitting the deaths (numbering 4) of persons admitted into public institutions from localities outside the Area, the rate was 14.8 per 1,000. During the twenty-eight weeks ending with Saturday, July 16, the death-rate averaged 22.2, and was 3.2 below the mean rate for the corresponding portions of the ten years 1900-1909.

The total deaths (amounting to 114) included one death from scarlet fever, one death from whooping-cough, one death from diphtheria, one death from enteric fever, and 3 deaths from epidemic diarrhoea. In each of the three preceding weeks deaths from scarlet fever had been 0, one, and 0; deaths from diarrhoeal diseases had been one, one, and 6; deaths from enteric fever

had been 0, 0, and 0; deaths from diphtheria had been 0, one, and 2; and deaths from whooping-cough had been one, 3, and 0. There was one death from enteritis of a child aged one year and 3 months registered in the week under notice.

The deaths from pneumonia (all forms) included one death from lobar pneumonia, 3 deaths from broncho-pneumonia, and 3 deaths from *pneumonia* (not defined). The deaths (27) from all forms of tuberculous disease included 19 from tubercular phthisis (*phthisis*), 4 from tubercular meningitis, and 4 deaths from other forms of the disease. Deaths from all forms of tuberculous disease in the three preceding weeks had been 34, 37, and 18 respectively.

Of 5 deaths from malignant disease, 2 were attributed to carcinoma, one death to sarcoma, and 2 deaths to cancer, malignant disease (undefined).

Five deaths of prematurely born infants were recorded.

Diseases of the heart and blood-vessels caused 17 deaths, and diseases of the respiratory system accounted for 18 deaths. *Convulsions* caused the death of one infant.

There was one death by suicide, and of the 2 accidental deaths one was that of a child aged one year and 10 months from burns.

There was no instance in which the cause of death was 'uncertified.'

Twenty-nine of the persons whose deaths were registered during the week were under 5 years of age (18 being infants under one year, of whom 7 were under one month old), and 35 were aged 60 years and upwards, including 17 persons aged 70 and upwards, of whom one was an octogenarian.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer

for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and by Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended July 16, 1910, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis (<i>Pulvisis</i>)	Total
City of Dublin	June 25	-	•	•	13	-	-	12	-	1	10	10	-	•	-	26	72
	July 2	-	•	•	21	1	-	12	-	2	13	7	-	•	-	31	85
	July 9	-	•	•	9	-	-	9	-	-	11	7	-	•	-	23	59
	July 16	-	•	•	28	-	-	5	-	-	5	15	-	•	-	21	74
Rathmines and Rathgar Urban District	June 25	-	•	•	-	-	-	-	-	-	1	1	-	•	•	•	2
	July 2	-	•	•	1	-	-	2	-	-	2	2	-	•	•	•	7
	July 9	-	•	•	1	-	-	1	-	-	2	1	-	•	•	•	3
	July 16	-	•	•	-	-	-	2	-	-	-	-	-	•	•	•	2
Pembroke Urban District	June 25	-	-	-	-	-	-	1	-	-	-	-	-	-	-	•	1
	July 2	-	-	-	1	-	-	-	-	-	-	-	-	11	-	h	12
	July 9	-	-	1	1	-	-	-	-	-	-	-	-	1	-	-	3
	July 16	-	-	1	1	-	-	1	-	-	-	-	-	3	-	-	5
Blackrock Urban District	June 25	-	•	•	-	-	-	1	-	-	-	-	-	•	-	•	1
	July 2	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	July 9	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
	July 16	-	•	•	-	-	-	-	-	-	-	-	-	•	-	•	-
Kingstown Urban District	June 25	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	July 2	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	July 9	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	July 16	-	•	•	1	-	-	-	-	-	-	-	-	•	•	-	1
City of Belfast	June 25	-	•	•	10	-	-	3	-	-	3	6	-	•	•	24	46
	July 2	-	•	•	7	-	-	1	-	-	1	4	-	•	•	13	26
	July 9	-	•	•	5	-	-	5	-	-	1	1	-	•	•	18	30
	July 16	-	•	•	2	-	-	5	-	-	2	7	-	•	•	15	31

^a Continued Fever.

^b Notifiable as from 1st July, 1910.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended July 16, 1910, one case of measles was discharged from hospital, and 3 cases remained under treatment at its close.

Twenty-four cases of scarlet fever were admitted to hospital, 20 were discharged, there were 2 deaths, and 86 cases remained under

treatment at the close of the week. This number is exclusive of 22 convalescents from the disease under treatment in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the three preceding weeks the cases in hospital had been 78, 82, and 84 respectively.

One case of typhus was discharged from hospital during the week, and one remained under treatment at its close.

Eighteen cases of diphtheria were admitted to hospital, 15 were discharged, there was one death, and 54 patients remained under treatment at the close of the week. The cases in hospital at the close of the three preceding weeks had numbered 61, 56, and 52 respectively.

Five cases of enteric fever were admitted to hospital during the week, 8 were discharged, there was one death, and 33 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 7 cases of pneumonia were admitted to hospital, 6 were discharged, there was one death, and 15 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, July 16, in 77 large English towns, including London (in which the rate was 11.1), was equal to an average annual death-rate of 11.4 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 12.4 per 1,000, the rate for Glasgow being 11.9, and for Edinburgh 11.6.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended July 16. From this report it appears that of a total of 52 cases notified, 26 were of scarlet fever, 9 of phthisis, 9 of diphtheria, 7 of erysipelas, and one of enteric fever.

Among the 303 cases of infectious diseases in hospital at the close of the week were 146 cases of scarlet fever, 38 of measles, 53 of phthisis, 9 of whooping-cough, 36 of diphtheria, 5 of erysipelas, 5 of chicken-pox, and 6 of enteric fever.

VITAL STATISTICS.

For four weeks ending Saturday, August 13, 1910.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended August 13, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 15.7 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, August 13, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality:—

TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks	TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks
	July 23	July 30	Aug. 6	Aug. 13			July 23	July 30	Aug. 6	Aug. 13	
22 Town Districts	16.3	16.2	15.3	15.7	15.9	Lisburn	22.7	22.7	4.5	9.1	14.8
Armagh	20.6	13.7	6.9	20.6	15.5	Londonderry	8.4	22.8	19.2	14.4	16.2
Ballymena	19.2	4.8	9.6	28.7	15.6	Lurgan	8.9	13.3	8.9	—	7.8
Belfast	15.6	18.0	15.3	13.6	15.6	Newry	4.2	4.2	12.6	16.8	9.5
Clonmel	15.4	20.5	10.3	5.1	12.8	Newtown- ards	17.2	17.2	28.6	28.6	22.9
Cork	19.9	16.4	6.8	15.1	14.6	Portadown	20.7	25.8	15.5	10.3	18.1
Drogheda	20.4	8.2	12.3	4.1	11.3	Queenstown	6.6	13.2	19.8	13.2	13.2
Dublin (Reg. Area)	17.2	15.5	17.2	17.9	16.9	Sligo	9.6	9.6	9.6	—	7.2
Dundalk	4.0	—	16.0	8.0	7.0	Tralee	15.9	—	10.6	5.3	8.0
Galway	23.3	11.7	19.4	11.7	16.5	Waterford	19.5	19.5	19.5	27.3	21.4
Kilkenny	24.6	9.8	4.9	73.7	28.2	Wexford	23.3	9.3	23.3	14.0	17.5
Limerick	13.7	17.8	12.3	10.9	13.7						

The deaths (including those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, August 13, 1910, were equal to an annual rate of 2.1 per 1,000, the rates varying from 0.0 in fourteen of the districts to 9.6 in Ballymena—the 6 deaths from all causes for that district including 2 from diarrhoeal diseases. Among the 102 deaths from all causes for Belfast were 4 from measles, one from whooping-cough, one from *pyrexia* (origin uncertain), and 14 from diarrhoeal diseases. One of the 14 deaths from all causes for Waterford was from measles.

DUBLIN REGISTRATION AREA.

In the Dublin Registration Area the births registered during the week ended Saturday, August 13, 1910, amounted to 209—110 boys and 99 girls; and the deaths to 143—75 males and 68 females.

DEATHS.

Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the Area, the death-rate was 17.9 per 1,000. The total deaths registered (143) represent a death-rate of 18.5 per 1,000 per annum. During the thirty-two weeks ending with Saturday, August 13, the death-rate averaged 21.7, and was 3.0 below the mean rate for the corresponding portions of the ten years 1900–1909.

Among the deaths from all causes registered, one death was from measles, one was from scarlet fever; 3 were from whooping-cough, and 14—all of infants under one year of age—were from diarrhoeal diseases (there were also 2 deaths from enteritis at this age). In each of the 3 preceding weeks deaths from scarlet fever had been 3, 3, and one; from measles, one, 0, and 0; from whooping-cough, one, 0, and 3, and from diarrhoeal diseases, 5, 0, and 2.

Included among 8 deaths from pneumonia (all forms) were 3 from lobar pneumonia, one from broncho-pneumonia, while 4 were attributed to *pneumonia* (not defined).

There were 29 deaths from all forms of tuberculous disease. This figure includes 14 deaths from tubercular phthisis (*phthisis*), 7 deaths from tubercular meningitis, one death from *tabes mesenterica*, and 7 deaths from other forms of the disease. In each

of the 3 preceding weeks, deaths from all forms of tuberculous disease had been 14, 26, and 34.

Carcinoma caused the deaths of 7 persons, and there was one death from cancer (undefined).

The deaths of 3 infants were due to prematurity.

Of 12 deaths from diseases of the brain and nervous system, 5 were from *convulsions*. The latter figure includes the deaths of one infant under one month old, 3 between the ages of one month and one year, and one aged 2 years and 8 months.

Twenty deaths were from diseases of the heart and blood vessels, and 7 deaths were caused by bronchitis.

Of 8 deaths attributed to accidental causes, 2 were by motor vehicles, one was by burning, and one was by drowning.

In 3 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the death of one infant under one year old and the deaths of 2 persons aged 60 years and upwards.

Fifty-four of the persons whose deaths were registered during the week were under 5 years of age (43 being infants under one year, of whom 10 were under one month old) and 30 were aged 60 years and upwards, including 18 persons aged 70 and upwards, of whom 3 were octogenarians, and one (a female) was stated to have been aged 105 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended August 13, 1910, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tubercular Phthisis (<i>Phtisis</i>)	Total
City of Dublin	July 23	-	*	o	19	-	-	18	-	3	4	12	-	o	-	31	87
	July 30	-	o	o	17	1	-	10	-	4	4	7	-	*	-	21	60
	Aug. 6	-	-	*	11	-	-	7	-	8	13	13	-	-	-	20	59
	Aug. 13	-	o	■	12	-	-	12	-	-	10	1	*	-	-	13	51
Rathmines and Rathgar Urban District	July 23	-	*	*	1	-	-	1	-	-	-	-	-	*	*	o	2
	July 30	-	*	*	-	-	-	-	-	-	-	1	-	o	o	*	1
	Aug. 6	-	*	*	-	-	-	1	-	-	-	-	-	o	*	*	1
	Aug. 13	-	o	*	-	-	-	-	-	-	-	-	-	*	*	*	-
Pembroke Urban District	July 23	-	-	-	-	-	-	1	-	-	1	1	-	-	-	2	5
	July 30	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	Aug. 6	-	-	-	1	-	-	1	-	-	-	-	1	-	-	-	3
	Aug. 13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackrock Urban District	July 23	-	o	o	1	-	-	1	-	-	-	-	-	*	-	*	2
	July 30	-	o	o	-	-	-	-	-	-	-	-	-	o	-	■	-
	Aug. 6	-	o	o	-	-	-	-	-	-	-	-	-	o	-	■	-
	Aug. 13	-	*	o	-	-	-	-	-	-	-	-	-	*	-	■	-
Kingstown Urban District	July 23	-	*	*	-	-	-	-	-	-	-	-	-	*	o	-	1
	July 30	-	*	*	-	-	-	-	-	-	1	-	-	o	o	-	-
	Aug. 6	-	*	*	-	-	-	-	-	-	1	-	-	*	*	-	1
	Aug. 13	-	*	*	1	-	-	-	-	-	1	-	-	*	o	-	2
City of Belfast	July 23	-	o	*	4	1	-	2	-	-	2	2	-	*	*	18	29
	July 30	-	o	o	10	-	-	5	-	-	3	3	-	*	*	17	37
	Aug. 6	-	o	o	6	-	-	5	-	12	5	4	-	*	*	19	41
	Aug. 13	-	o	o	4	-	-	4	-	-	5	4	-	o	■	12	29

^a Continued Fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended August 13, 1910, two cases of measles were admitted to hospital, and 3 cases remained under treatment at its close.

Nine cases of scarlet fever were admitted to hospital, 22 were discharged, there was one death, and 74 cases remained under treatment at the close of the week. This number is exclusive of 22 convalescents in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 96, 99, and 88, respectively.

One case of typhus was discharged from hospital, and one case remained under treatment at the close of the week.

Eleven cases of diphtheria were admitted to hospital, 17 were discharged, and 42 patients remained under treatment at the close of the week. The cases in hospital at the close of the 3 preceding weeks numbered 63, 57, and 48, respectively.

Five cases of enteric fever were admitted to hospital during the week, 3 were discharged, there was one death, and 30 cases remained under treatment in hospital at the close of the week.

In addition to the above-named diseases, 6 cases of pneumonia were admitted to hospital, 4 were discharged, there were 2 deaths, and 11 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, August 13, in 77 large English towns, including London (in which the rate was 10.3), was equal to an average annual death-rate of 11.1 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 12.7 per 1,000, the rate for Glasgow being 13.0, and for Edinburgh 11.4.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended August 13. From this report it appears that of a total of 43 cases notified, 18 were of scarlet fever, 13 of phthisis, 8 of diphtheria, 3 of erysipelas, and one of enteric fever.

Among the 286 cases of infectious diseases in hospital at the close of the week were 157 cases of scarlet fever, 54 of phthisis, 33 of diphtheria, 18 of measles, 7 of chicken-pox, 6 of enteric fever, 4 of erysipelas, and 2 of whooping-cough.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of July, 1910.

Mean Height of Barometer, - - -	29.864 inches.
Maximal Height of Barometer (13th, at 9 p.m.),	30.190 „
Minimal Height of Barometer (25th, at 5 a.m.),	29.350 „
Mean Dry-bulb Temperature, - - -	58.1°.
Mean Wet-bulb Temperature, - - -	54.9°.
Mean Dew-point Temperature, - - -	51.9°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.388 inch.
Mean Humidity, - - - -	80.6 per cent.
Highest Temperature in Shade (on 27th), -	72.2°.
Lowest Temperature in Shade (on 8th), -	47.1°.
Lowest Temperature on Grass (Radiation) (8th),	44.2°.
Mean Amount of Cloud, - - - -	55.0 per cent.
Rainfall (on 16 days), - - - -	2.400 inches.
Greatest Daily Rainfall (on 5th), - - -	.524 inch.
General Directions of Wind, - - -	N.W., S.W., N.E.

Remarks.

A cool, cloudy month. The beginning and end were unsettled, and either rainy or showery. The beginning was cold as well as rainy, with prevalent N.W. or N. winds. An anticyclonic dry rainless period, with cool N.W. and afterwards N.E. or E. winds, set in on the 6th, lasting to the 19th. From the latter date to the close a cyclonic distribution of atmospheric pressure was observed. Fresh to strong or squally S.W. winds prevailed, and there were frequent showers albeit the weather was seasonably mild and at times actually warm.

In Dublin the arithmetical mean temperature (58.5°) was 2.0° below the average of the 35 years 1871–1905 (60.5°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 58.1°. In the forty-six years ending with 1910, July was coldest in 1879 (“the cold year”) (M. T. = 57.2°). It was warmest in 1905 (M. T. = 63.8°); and in 1887 (M. T. = 63.7°). In 1909 the M. T. was 59.2°.

The mean height of the barometer was 29.864 inches, or 0.051 inch below the corrected average value for July—namely, 29.915 inches. The mercury rose to 30.190 inches at 9 p.m. of the 13th, and fell to 29.350 inches at 5 a.m. of the 25th. The observed range of atmospheric pressure was, therefore, 0.840 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 58.1° , or 1.8° above the value for June, 1910. Using the formula, $Mean\ Temp. = Min. + (Max. - Min. \times .465)$, the value was 58.10° , or 2.0° below the average mean temperature for July, calculated in the same way, in the thirty-five years, 1871-1905 inclusive (60.1°). The arithmetical mean of the maximal and minimal readings was 58.5° , compared with a thirty-five years' average of 60.5° . On the 27th the thermometer in the screen rose to 72.2° —wind, S.W.; on the 8th the temperature fell to 47.1° —wind, N.N.E. The minimum on the grass was 44.2° , also on the 8th.

The rainfall was 2.400 inches, distributed over 16 days. The average rainfall for July in the thirty-five years 1871-1905, inclusive, was 2.680 inches, and the average number of rain days was 17. The rainfall, therefore, and also the rain days were slightly below the average. In 1880 the rainfall in July was very large—6.087 inches on 24 days; in 1896, also, 5.474 inches fell on 18 days. On the other hand, in 1870, only .539 inch was measured on 8 days; in 1869 the fall was only .739 inch on 9 days; and in 1868 .741 inch fell on but 5 days. In 1909, 3.316 inches fell on 22 days.

High winds were noted on 11 days, but never attained the force of a gale (8). Temperature reached or exceeded 70° in the screen on 4 days, compared with 3 days in 1909, 9 days in 1908 and 1907, 10 in 1906, 17 in 1905, and 10 in 1904. The thermometer failed to reach 60° on the 4th. In 1888 the maximum for July was only 68.7° .

A solar halo was seen on the 6th and 26th. A brief thunder-storm occurred on the 3rd, when also hail fell.

The rainfall in Dublin during the seven months ending July 31st amounted to 21.032 inches on 127 days, compared with 15.377 inches on 106 days in 1909, 13.809 inches on 120 days in 1908, 14.358 inches on 127 days in 1907, 13.664 inches on 122 days in 1906, 11.022 inches on 109 days in 1905, 13.905 inches on 117 days in 1904, 19.072 inches on 131 days in 1903, 15.507 inches on 115 days in 1902, 11.432 inches on 93 days in 1901, only 7.935 inches on 80 days in 1887, and a thirty-five years' (1871-1905) average of 14.710 inches on 113 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William H. Clark, B.A., reports that the mean height of the barometer was 29.861 inches, the range of

atmospheric pressure being from 30.169 inches at 9 a.m. of the 14th to 29.367 inches at 9 p.m. of the 28th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 58.9°. The arithmetical mean of the daily maximal and minimal temperatures was 58.6°, the mean maximum being 65.0°, and the mean minimum 52.1°. The screened thermometers rose to 74.0° on the 27th, and fell to 46.0° on the 8th. On the 11th the grass minimum was 39.5°. Rain fell on 16 days to the amount of 2.414 inches, the greatest fall in 24 hours being .560 inch on the 5th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 205.0 hours, of which 13.5 hours occurred on the 10th. The mean daily duration was 6.6 hours. In July, 1904, there were 201 hours of bright sunshine; in 1905, 162.2 hours; in 1906, 184.8 hours; in 1907, 178.1 hours; in 1908, 174.3 hours, and in 1909, 139.8 hours. The mean sub-soil temperatures at 9 a.m. were—at 1 ft., 59.9°; at 4 ft., 56.9°. The one-foot thermometer ranged between 57.8° on the 1st and 63.2° on the 14th. The four-feet thermometer ranged from 56.0° on the 5th, 6th, 7th and 9th to 58.3° on the 29th.

Dr. C. Joynt, F.R.C.P.I., returns the rainfall at 21 Leeson Park, Dublin, at 2.370 inches on 16 days, .530 inch being measured on the 5th.

Captain Edward Taylor, D.L., reports that the rainfall at Ardgillan, Balbriggan, Co. Dublin, at a height of 210 feet above mean sea level, was 2.81 inches on 18 days, or 0.11 inch and 3 days in excess of the average. The maximal fall in 24 hours was 0.54 inch on the 5th. Since January 1, the rainfall at Ardgillan amounts to 19.11 inches on 121 days, being 4.15 inches and 14 days above average. The thermometers in the screen rose to 70.7° on the 13th, having fallen to 44.6° on the 8th.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, County Dublin, the rainfall was 2.50 inches on 14 days. The maximal fall in 24 hours was .52 inch, measured on the 28th. The mean temperature was 59.1°, the range being from 76° on the 12th to 45° on the 26th. Thunder, lightning, and hail occurred on the 3rd.

At Druid Lodge, Killiney, Co. Dublin, Mrs. Olive F. Symes registered a rainfall of 1.85 inches on only 10 days. The heaviest fall in 24 hours was .53 inch on the 28th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 2.75 inches on 15 days. The largest daily fall was .71 inch on the 5th. The mean shade temperature

was 58.9° , the extremes being—highest, 71° on the 27th; lowest, 40.5° on the 3rd.

At Cheeverstown, Clondalkin, Co. Dublin, Miss C. Violet Kirkpatrick recorded a rainfall of 2.19 inches on 15 days, the largest measurement in 24 hours being .57 inch on the 20th.

Mr. R. Cathcart Dobbs, J.P., reports that the rainfall at Knockdolian, Greystones, Co Wicklow, was 1.715 inches on 12 days, the maximal daily fall being .600 inch on the 28th. Since January 1, 1910, the rainfall at that station equals 20.440 inches on 105 days.

Dr. W. S. Ross returns the rainfall at Clonsilla, Greystones, as 1.91 inches on 14 days, the maximal measurement in 24 hours being .55 inch on the 28th. The thermometer in the screen ranged from 46° on the 1st to 70° on the 25th. The mean maximum was 64.7° , the mean minimum 52.7° , and the mean temperature 58.7° .

At Cork Mr. W. Miller registered 2.12 inches of rain on 16 days, the fall being 0.46 inch short of the average for July. The greatest rainfall in 24 hours was 0.48 inch on the 4th. There were 14 consecutive days without rain before the 18th. Since January 1, 1910, 20.06 inches of rain have fallen in Cork on 129 days, the measurement being 0.13 over the average for the first seven months of the year, and the rain days being 22 in excess.

At the Rectory, Dunmanway, Co. Cork, the Rev. Arthur Wilson, M.A., recorded a rainfall of 2.61 inches on 17 days. The heaviest falls in 24 hours were—.69 inch on the 27th and .52 inch on the 23rd. No rain fell from the 5th to the 14th inclusive. From the 19th to the end the weather was unsettled, with strong W. and N.W. winds. It was a cool month, except on the 7th and 14th, which were very warm days. July retains its position as the driest month of the year at Dunmanway, the average rainfall in six years being 3.05 inches, June coming next with 3.21 inches.

At Derreen, Kenmare, Co. Kerry, Mr. W. Holbrow measured 4.03 inches of rain on 14 days, the maximum in 24 hours being .89 inch on the 27th. On the 24th .60 inch was recorded.

At the Ordnance Survey Office, Phoenix Park, rain fell on 16 days to the amount of 2.200 inches, the greatest rainfall in 24 hours being .610 inch on the 20th. The total duration of bright sunshine was 232.2 hours, the longest daily sunshine being 14.7 hours on the 10th, 11th and 13th.

PERISCOPE.

LITERARY INTELLIGENCE.

MESSRS. REBMAN will be publishing in the autumn a work on the Abdomen Proper, by W. Cuthbert Morton, M.A. (Edin. Classical first), M.D. (Edin.). In the work, which has been favourably received by some of the most distinguished anatomists and medical men of Great Britain, a definition of the principles which ought to be followed in anatomical description is accompanied by an illustration of both text and plates of the thorough and consistent application of those principles to the abdomen proper. While in practical, regional, and systematic descriptions the attention is riveted on the individual structures, regions or systems and their relations, this work presents the body in such a way that organic unity of the whole may never be lost sight of. The method of the work is at once destructive and constructive, the abdomen can be reduced to its parts, the parts can be studied both individually and in relation to each other, and lastly, the parts can be rebuilt into the whole. In the text this is accomplished by the order; each part is described in natural sequence to what has gone before, and in natural precedence to what is to follow, and all the parts are further correlated by references. The plates, though few in number, and by no means overcrowded with detail, present a complete abdomen proper with every structure in situ. By a simple and entirely novel device almost every degree of correlation is possible, and since the body is presented in its organic unity, the work provides the solution to many difficult problems, not only in pure anatomy, but also in every branch of medical science and art in which anatomy plays a part—*e.g.*, in systematic, regional and practical anatomy, surface anatomy, clinical medicine and surgery, operative surgery, &c. An example or two must suffice. Every organ can be studied—its surface anatomy, its parietal, visceral and peritoneal relations, and its blood and lymph vascular and nervous supply. Again, the peritoneal sac is presented in the plates in its entirety, and may be studied not only in the usual way by a consideration of the great and small sacs, or by vertical and transverse sections, but also by the destructive and constructive method advocated in the work itself. In the text the peritoneal sac is described from an altogether new point of view, and, in addition, its different portions are dealt

with in relation to the individual organs in such a way that the whole sac is gradually built up. From the very nature of the work it ought to be of service to every one who is interested in anatomy, whether student or teacher, general practitioner, surgeon or physician.

HOUSE-FLIES AND DISEASE.

IN an article on this subject in *Nature*, July 21, 1910, Mr. C. Gordon Hewitt writes:—"In considering the relation of house-flies to disease, although the one species of fly, *Musca domestica*, usually constitutes from 90 to 98 per cent. of the fly population of houses, certain other species are also found to occur. The lesser house-fly, *Homalomyia canicularis*, has the next place in the scale of frequency, and is generally mistaken by the uninitiated for a young house-fly, on account of its general resemblance. Although both the adult fly and the larva have pronounced structural differences, the habits of the larva and the economic relationships of the fly resemble those of *M. domestica*. The blood-sucking fly, *Stomoxys calcitrans*, is not infrequently mistaken for the true house-fly, which has adopted vicious habits. *M. domestica*, however, is unable to pierce the most delicate skin, and *S. calcitrans*, which frequently enters, and is found in houses in the spring and also in the autumn, especially in rural houses, presents considerable differences, the chief being the possession of an awl-like, piercing proboscis, a more robust build, and its coloration. Not infrequently inflammatory swellings, sometimes of a serious nature, result from the 'bite of a fly,' and such cases are instances of the mechanical transference of such bacteria as streptococci from infected material to a healthy human being by a blood-sucking fly. Malignant pustule may be caused by the mechanical transference of the *Bacillus anthracis* by a blood-sucking fly, or it may be by a non-blood sucking fly, such as the blow-fly, *Calliphora erythrocephala*, if the skin is broken to provide entrance for the bacillus. Wherever there is filth, suppuration, or purulent discharge, flies are invariably attracted, and as they are cosmopolitan in their attentions and no distinguishers of persons, they are potential disseminators of such bacteria as these substances may contain. It is not a question of eradication in the case of this insect; such is impossible. Control and prevention, however, are within the bounds of possibility, and these will be regarded as essential when the facts are more generally realised."

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XI.—*Schinznach-les-Bains*. By JAMES LITTLE, M.D., LL.D.; one of the Honorary Physicians to the King in Ireland; Regius Professor of Physic in the University of Dublin; Physician to the Adelaide Hospital.

AN old gentleman who lived in Fitzwilliam Place some years ago and was a patient of mine first told me of Schinznach-les-Bains. He had suffered nearly all his life from attacks of eczema, and said he had derived more benefit from Schinznach than from any other bath. Since then I have occasionally suggested to patients suffering from this ailment who were anxious to go abroad to try Schinznach. I always did so with more or less reluctance, as it is a good rule—and one I have very seldom violated—that a physician should not send a patient to a health resort which he has not himself previously visited. Therefore, when I happened this summer to be in Switzerland I thought I would go and see Schinznach for myself.

Starting from Bâle, and changing at Brugg, the traveller reaches Schinznach in about an hour and a half.

Bâle itself is not a very convenient place to reach for an invalid. Leaving Charing Cross at eleven o'clock in the morning the traveller does not reach Bâle until five o'clock the following morning. If he wishes to avoid a night journey the only way he can do so is to go to Paris, sleep there, and next day take a train from Paris to Bâle. This involves a delay of two days and costs more money, but many people do not object to a day in Paris. The return journey is also a long one. I left Schinznach a little before three, spent the afternoon in Bâle, slept comfortably at "The Three Kings," and leaving Bâle at 9 40 arrived at Charing Cross at 10 45 the same day: but there was an excellent restaurant car, and the long journey was made with every comfort. The Grand Hotel, Habsburg, is really Schinznach-les-Bains. There is no town, though the country around is rather densely populated, for the village of Schinznach is some two miles distant. The land for a considerable distance round the hotel belongs to the proprietors of the hotel. This is a great advantage, for they have made many very pretty shady walks round the *Établissement*, and at various points one can approach the river Aar, and if he is an ardent fisherman there are trout to be caught. The surrounding country is very picturesque—hills and valleys, many woods, and rich, carefully cultivated land. The hotel itself is most comfortable. The previous day's English papers are on sale about eleven o'clock every morning. I had just come from three of the best hotels in Europe—the Tyrol at Innsbruck, the Kurhaus at Tarasp, and the Belvedere at Davos—and I thought the table at the Habsburg quite as good as at any of the others, and the wine excellent and moderate in price; perhaps a misfortune, for I suppose most invalids are all the better for leaving wine undrunk. The water—of which there is an overflowing supply—is a strong, thermal, sulphurous spring, not very bad to drink, but chiefly used externally. There are well-arranged, comfortable bath-rooms, and rooms for hot sprays, inhalations, and for gargling. They seem chiefly used for

genuine acne and for the various pimply, disfiguring troubles in the skin which are loosely grouped under the head of acne. Young ladies go there to have their complexion improved and to get that part of the scapular region which shows above a low dress at a ball made smoother and more attractive. Next to acne come eczema and psoriasis. Dr. Amsler, who has studied in England and speaks English perfectly, does not claim for the water any power for doing more for psoriasis than clearing the surface for a time. Besides skin diseases the Schinznach waters and inhalations are very valuable in chronic bronchial catarrh and bronchorrhœa and in unhealthy conditions of the pharynx and naso-pharynx. Joints stiffened by gout or rheumatism are rendered more useful by the baths and by local poultices after the fashion of the mud-baths used at Marienbad and elsewhere. Dr. Amsler has also found the waters useful in some forms of colitis. They are slightly constipating in moderate doses.

Though the bed rooms and the dining and sitting rooms are very nice, and all the appointments perfect, Schinznach is not what would be called a fashionable health resort. There is an excellent band, which plays three times a day, but young people who would go expecting to have the round of tennis and dancing which obtains at the Waldhaus at Vupera or the dissipation of Aix-les-Bains will be disappointed. Schinznach is a place for people who are more or less sick and who go for the cure. There is a fair proportion of English ladies and gentlemen, but in the evening among those who listen to the music one sees homely German matrons knitting and gossiping. It is a very nice place, quiet and comfortable, where three or four weeks may be passed with enjoyment and advantage by any one who suffers from any of the ailments over which the waters exercise a remedial influence, and more kindly and obliging people than all connected with the establishment could not be found. It deserves to be better known than it is in Ireland.

ART. XII. *Colloids and some of their Biological Relations.*^a By WALTER G. SMITH, M.D., Ex-President, Royal College of Physicians of Ireland; Physician to Sir Patrick Dun's Hospital.

It is almost exactly half a century since the terms colloid and crystalloid were introduced by Graham in his remarkable and fundamental researches on the velocities of diffusion of various substances.

The term *colloid* has of late years received a large extension of meaning, and the conception has proved of far-reaching and increasing significance in physics and in physiology.

Colloids include all proteins, gums, starches, dextrin, glycogen, tannins, chondrin, probably the enzymes, toxins, anti-toxins, and also the greater number of organic dyes. Nearly all the primary constituents of cells are organic colloids, which are, therefore, largely concerned in the functions of the living cell, and they form with the crystalloids of the cell a common solution. The properties general to all colloids are these:—Very low diffusibility, small osmotic pressure, and slight electric conductivity. Crystalloids exhibit converse properties. Although Graham believed that colloids and crystalloids represented two different worlds of matter, it is now universally accepted that no sharp demarcation exists between them, and it is recognised that labile compounds of crystalloids and colloids are common. Not only do proteins and fats combine so that the fat vanishes from microscopic ken, but proteins unite with carbohydrates, and there are good reasons for believing that in the blood sugar circulates in some form of feeble union with protein, for it can be set free by passing a stream of CO_2 through the blood, or through the clear serum of blood. "In hyperglycæmia of diabetes there is an excess of

^a Read before the Dublin Biological Club, 1910. Many illustrative experiments were shown.

sugar above that which can enter into union with the protein, and it is this excess which is seized upon and thrown out into the urine by the kidney cells." (B. Moore.)

Many other substances, including calcium salts, are probably carried in the blood in this fashion *-i.e.*, held in loose suspension by proteins. These substances, very finely divided, will have extremely large surface area for reactions, and, therefore, may undoubtedly undergo chemical change with considerable rapidity, although not in true homogeneous solution.

Both inorganic and organic colloids in solution are often readily thrown out by the addition of solutions of various saline electrolytes, and upon this property is based the familiar "salting out" applied in soap-making and in the differential separation of proteins. The separation is, in most cases, probably facilitated by the development of opposite electrical conditions between the protein and the ions of the salt. Some colloids can be shown to be electrically charged, and others not so. In this respect of electric variability, colloid molecules differ from inorganic ions which carry a definite charge of electricity, invariable in amount, and always the same in sign for each kind of ion.

Metallic hydrosols are very sensitive to "salting out," and a small addition of an electrolytic salt readily "coagulates" the colloidal metal.

The facts connected with phlorizin diabetes are capable at present of no other explanation than on these lines.

"The delicate and lightly-balanced labile equilibrium between the colloids of the cell protoplasm and the osmotic pressures and concentrations of the inorganic ions and other crystalloid constituents is perhaps the most important and fundamental fact in the whole of biology." (B. Moore.)

On the other hand, "the rigorous conception of the cell as analogous in all respects to a fluid medium holding crystalloids simply in solution, and bounded by a semi-

permeable wall, is a most pernicious notion." (B. Moore.)

The cell must be taken as a whole with varying osmotic properties, both of contents and wall. The living cell exists in a periodically or physically varying osmotic equilibrium with its surroundings.

"The living cell, wonderful in its minuteness, is capable of the most extraordinary number of chemical reactions, many of which run in opposite directions. The liver cell, for example, builds glycogen out of sugar, and sugar out of glycogen, forms urea and uric acid out of amido-acids and ammonia, breaks down hæmoglobin, separating iron and forming bilirubin, produces cholalic acid out of unknown precursors and links it with taurin and glycin, and binds phenol with the radical of sulphuric acid. These are the chief known activities. In addition there are hosts of others, including the assimilation, hydration, and oxidation of food-stuffs. . . . In the cell we are confronted with an astounding simplicity of structure, and a mechanism which spares space and energy to a marvellous degree." The fundamental principle of this structure is, possibly, the existence of innumerable colloidal enzymes, between which and their crystalloid surroundings complicated currents of diffusion are perpetually going on. (Leonard Hill, "Recent Advances in Physiology," p. 202.)

There is, further, no real demarcation between physical and chemical phenomena. In modern physico-chemical notions, just as the atom is losing its position as a fixed constant, so is it true of the cell in cytology and biochemistry. (B. Moore and Bigland, *Biochem. Journ.*, Feb., 1910.)

When gelatine is dissolved in hot water is the product a true solution? That is a burning question which has been the subject of much controversy.

How shall we define a solution?

The most comprehensive definition is that of van't Hoff:—

"A solution is a homogeneous mixture whose compo-

sition and physical properties can, within certain limits, be altered continuously with maintenance of homogeneity."

But one may well ask what is the criterion of homogeneity, and we naturally direct our attention to the optical examination of the liquid. Discontinuity of substance, or heterogeneousness, is met with as coarse mud, fine suspensions, with every gradation down to transparent liquids which appear homogeneous until tested by refined means.

Zsigmondy defines solutions as uniform distributions of solids in fluids, which are transparent to ordinary light, and not separable into their constituents by the action of gravity or filtration. This serves as a practical and useful definition.

There are several ways of detecting minute particles—*e.g.*, (a) The spinthariscopes of Crookes, which, however, does not now concern us. In this simple instrument, the tiny α particles that escape from the speck of radium salt become visible as they hurl themselves against the sensitive screen of zinc sulphide. Each impact of an α particle flashes out as a bright scintillation.

(b) The microscope, as used in the usual way, by transmitted light, either ordinary light or with ultra-violet light—*i.e.*, very short wave-length.

Modern microscopes have nearly approached, as regards definition of form, the limit imposed upon them by the constitution of light itself. Two points cannot be separated from each other at a distance less than 0.2μ . The ultra-violet microscope extends the possibilities of the instrument.

(c) Faraday-Tyndall's famous experiment.

Solar light, in passing through a dark room, reveals its track by illuminating the dust floating in the air. This dust Tyndall found, to his great surprise, to be organic in nature and combustible; for he had imagined that it was probably inorganic in nature.

When a stream of air was passed through a red-hot

platinum tube the floating matter had entirely disappeared, and the air proved to be "optically empty."

Tyndall's light-beam is a more delicate and searching test for optical inhomogeneity than spectral analysis.

When a beam of light is passed through colloidal solutions, they mostly appear dichroic, the light is polarised, and, therefore, reflected, and so there must be reflecting particles in the colloidal solution. The polarisation of the light distinguishes fine suspensions from true fluorescent solutions. Some colloidal solutions—*e.g.*, acid colloidal silica and alkaline congo-red—are, on the other hand, optically homogeneous.

The blue colour of the sky is partly due to reflection and polarisation of light from minute particles in the atmosphere, and Lord Rayleigh is of opinion that the molecules of air itself have a considerable share in scattering the light.

(*d*) The ultra-microscope, which is based upon the same principle as Tyndall's dust experiment. The term is sometimes loosely applied to microscopy by dark ground illumination, or by ultra-violet light.

The existence of particles too small to be distinguished *in form* by the usual microscopes can be attested by the ultra-microscope of Zsigmondy and Siedentopf, which represents an entirely new method. The principle of the instrument is this—a very minute object, illuminated laterally by an intense, but thin cone of light, and viewed against a profoundly dark background, *diffracts* the light, and appears as a point-source of light.

The *form* of the object is entirely unobserved, and it merely appears as a star of light.

Colloids represent not so much a special *class* of substances but rather a special *condition* of things—*i.e.*, a state of very fine sub-division—*i.e.*, a large "specific surface." Emulsions of AgBr used in colour-photography by Lippmann's process appear by transmitted light continuous or homogeneous; but when examined by the ultra-microscope a number of bright, brilliant

points are revealed, which can be photographed, and which are soluble in "hypo."

An extremely interesting application of the ultra-microscope to the study of the phenomena of electrolysis has been made by a Russian observer, Dr. Kossonogow, of the University of Kiev. He finds that when an electrolyte is examined under the ultra-microscope, at the moment the current is switched on there appear in the field a number of bright points of light which travel towards the electrodes with velocities of the same order of magnitude as have been found for the ions. The path may be deviated by means of a magnet. When a point reaches an electrode it appears to attach itself and take a crystalline form. None of these appearances are observed in the case of a non-electrolyte, and there seems little doubt that now, for the first time, the human eye can actually directly observe the motions of the ions in electrolysis. (*Nature*, Jan. 13th, 1910.)

Colloids exist either in apparent solution, and are then termed "sols"; or, as jellies, distinguished by the term "gel"—terms we owe also to Graham. According to the liquid medium concerned we speak of hydrosols, or alcossols; of hydrogels, or alcogels.

As to their nature there are two main classes of colloids:—

- | | | |
|--------------|---|---|
| I. Inorganic | { | Elements—Au. Ag. Pt. |
| | | Compounds— SiO_2 . As_2S_3 . |
| II. Organic | { | Ternary—Glycogen: Starch. |
| | | Quaternary, and even more complex— |
| | | Proteins. Many dyes. Enzymes.
Toxins. Antitoxins. |

Our knowledge of Class II. is still in its infancy. Some colloids—*e.g.*, gelatin and agar-agar—can exist in the two forms of *sol* and *gel*, which are easily convertible one into the other by slight changes of temperature. The stiffening into gel is usually induced by lowering the temperature. Casein is the only known exception. An alkaline solution forms a hydrosol. Add

CaCl_2 , warm, and a gel is formed. These are termed "reversible" colloids. Others *e.g.*, purple of Cassius do not assume this two-fold aspect, and are termed "irreversible" colloids.

In the living cells of the body there are only non-reversible colloids.

Gelatin is curiously modified by the action of formalin, and afterwards, although apparently unchanged, is no longer soluble in hot water.

The solvent probably is an important factor in determining the colloidal or non-colloidal nature of a substance. *E.g.*, soaps form true solutions in alcohol and colloidal solutions in water. Gelatin forms a colloid solution in water, but not in ether.

The water held in a gelatin *gel* cannot be removed by great pressure, up to 400 lbs. to the square inch. But after the nature of the gelatin is so changed by formalin that it is no more liquefiable by heat the water can be easily expressed from the loose meshwork that is formed. (Hardy.) In other words, there is merely imbibition of water (*Quellung*), and this phenomenon of imbibition is probably of consequence in physiological processes.

There are innumerable transition stages between suspensions and colloidal solutions. Optical inhomogeneity disappears, or nearly so, in all bodies when we approach molecular dimensions.

Colloidal solutions essentially consist of extremely fine sub-divisions of originally solid bodies. The fine particles may be solid or liquid. Distilled water, as ordinarily found, is optically heterogeneous, but by great care and using special precautions, it can be obtained optically clear. Yet even in many crystalloid solutions which are absolutely clear it can be shown that the solutions are not truly homogeneous. An extremely interesting observation on the mobility of the molecules of optically clear solutions has been made by van Calcar and Lobry de Bruyn. These Dutch investigators have found that by means of centrifugal action a notable alteration of

concentration can be effected in perfectly clear homogeneous saline solutions. They were able to bring into crystalline form three-eighths of the dissolved salt in a saturated solution of Na_2SO_4 to the periphery of the rotating instrument.

This remarkable experiment proves that apparently homogeneous solutions of crystalloids are not, strictly speaking, truly homogeneous. For, in a fluid which is at every point chemically and physically identical—*i.e.*, in which each smallest imaginable space-element has the same specific weight such demonstrable differences in concentration could not be brought about by the greatest possible velocity of rotation of the centrifuge.

We should remember that the centrifugal force increases proportionally to the square of the velocity of rotation, so that it becomes many times more effective than gravity. The particles in many colloidal solutions show phenomena analogous to, if not identical with, Brownian movements.

Brownian Movements.—First described by the botanist R. Brown in 1827, soon after the discovery of achromatic lenses. They consist of a trepidation—*i.e.*, of rapid and irregular movements of very minute heterogeneous particles (0.01 mm. the upper limit; best marked below $1\ \mu$ in a medium which permits movement). They have been likened to a crowd of flies dancing in a sunbeam. They are exhibited by fine particles of resins (gamboge: mastic) suspended in water, and also by metal *sols*, and have been observed in gases. They are not diffusion phenomena, for they may persist for years (cinnabar, two years), nor are they of thermal origin.

This curious mobility, so long a puzzle, has recently been shown by a number of observers to be conditioned by the kinetic molecular movements of the medium in which they take place—an interesting and significant conclusion.

The Brownian movements are the outward and visible sign of innumerable shocks communicated by the inward and unceasing turmoil of the ultimate molecules of the

liquid in which they move. The marvel of these movements is enhanced by the consideration of the relatively enormous masses of the moving particles in relation to molecular magnitudes and of the extent of the excursions of the Brownian particles compared with inter-molecular distances. The mass of a Brownian particle of gamboge in water is more than a million times greater than that of a molecule of water. The mass of an atom of H is about $16 \cdot 10^{-24}$ gm.; of a molecule of water $18 \cdot 10^{-24}$, and the mean distance between the molecules of water is less than 0.5μ . (Cotton et Mouton. *Les Ultra-microscopes*, Masson. 1906.)

The effect of colloids upon chemical processes diffusing within their solutions or their gels is surprisingly small. Salts in solution in a thick gel of agar or gelatin will diffuse almost as rapidly as in water, and chemical reactions occur with the same speed and completeness as if the colloids were absent. It makes little difference whether these processes are measured in a colloid solution that is liquid or after it has set in the gel form.

These considerations are of great importance in pathological processes. Yet a very strong "gel" exercises inhibitory influence upon chemical change occurring within its mass.

Many substances have been described by chemists as true chemical compounds which are now believed to be colloid combinations, or colloidal solutions, or absorption-complexes.

For example, Paal has shown that the organic combinations of oxides of heavy metals with proteins do not hold the metal in organic combination, but as colloidal oxide, which is kept in solution by the protective action of the protein or its derivatives.

Magnitudes. Let us consider the orders of magnitude dealt with by optical methods.

The usual unit of linear magnitude for small objects, as used in physics and histology, is the micron, $\mu = 0.001$ mm. = 10^{-3} cm.

But in "ultra-microscopy" we are compelled to employ a smaller unit—viz., the $\frac{1}{1000}$ part of a micron, $= \mu\mu = \frac{1}{1000000}$ mm. $= 10^{-6}$ cm.

The mean value of the wave length of ordinary light is 0.55μ .

The smallest particles as yet determined, under most favourable conditions, are from $3\text{--}6 \mu\mu$.

The limit of microscopic visibility by ordinary methods is about $\frac{1}{4} \mu$, and ultra-microscopy may be said to start from a magnitude of 0.1μ .

(a) 10^{-5} cm. Particles of this size are *micrones*, approximately about 0.00015 mm.—i.e., $\frac{1}{4}$ wave length of bright yellow or green light.

(b) 5×10^{-7} cm. = *sub-micrones*.

(c) 10^{-7} cm. = *amicrones*. Their presence may be proved by the coagulation of certain hydrosols on the addition of electrolytes.

(d) 10^{-8} cm. = gas molecules.

(e) Electrical radio-active phenomena indicate still smaller magnitudes.

We will now review a few selected examples of colloidal solutions. And, in the first place, we take the simplest case of the heavy metals.

Colloidal solutions of metals—e.g., Au. Ag. Pt., &c.—can be readily prepared by several methods.

(a) Reduction, by a number of plans—e.g., phosphorus, formalin, &c.

(b) Bredig's process, by an electric arc under water.

Some years ago I demonstrated to this Club the remarkable chemical activity of a platinsol, and drew attention to the curious and unexpected similarity of some of its operations to those of organic enzymes. In fact metals in such a state of fine sub-division are sometimes styled inorganic ferments. Through the kindness of Mr. E. Werner I am enabled to show you to-night some additional examples of colloidal metals. Zsigmondy has examined with immense care and patience colloidal gold solutions, and he has the merit of having rescued

from oblivion Faraday's researches on ruby glass published in 1857. It is well known that ruby glass owes its colour to gold, and Faraday's acute insight recognised that the colour must be due to very small particles diffused through the glass.

Gold Hydrosols.—In size the particles of clear colloidal gold solutions come very near to molecular dimensions, and the optical inhomogeneity of some of these solutions is scarcely greater than that of many crystalloid solutions. A carefully prepared gold-sol will keep unchanged for months or years. Many of the particles of gold are about $6\ \mu\mu$ in size.

From his experiments with colloidal gold-sols passed through three kinds of bacteriological filters--viz., Maassen's, Pukall's, and Chamberland's--Zsigmondy finds evidence that Chamberland's filter-candle possesses the smallest pores. In any filter the pores, doubtless, are of different sizes.

Cassius' Purple.—This magnificent colour is readily prepared from Au Cl_3 by reduction, and its nature has given rise to much controversy. It dissolves in molten glass, to which it communicates a splendid red colour, and it is also used for painting on porcelain. Zsigmondy has conclusively demonstrated that it is not a true chemical compound, but is really a mixture of the hydrosols of gold and of stannic acid, and he has succeeded in reproducing it by synthesis of the components.

If we now turn our attention to organic colloids and their place in biology, we find ourselves on less secure ground, and it may be admitted that we have scarcely got beyond the region of speculation.

Already, however, many interesting points have been made out, and there is much hope for the future.

Of ternary organic colloids, glycogen is the one which has been carefully examined by Raehlmann. He finds that solutions of this body plainly diffuse light, and exhibit under the ultra-microscope numerous particles, animated with lively Brownian movements.

By the action of diastase the granules disappear.

Proteins.—The examination of solutions of these bodies is difficult, and little can yet be said. It is, however, very probable that most natural albuminous fluids are colloids whose particles are of extreme fineness, and it is quite likely that the small dimensions of these particles facilitate the chemical exchanges so essential to living matter.

The association of organic colloids with inorganic substances is utilised in therapeutics in such combinations as collargol, argyrol, and so forth. It has been proved that a trace of colloid exercises considerable modifying influence upon many ordinary chemical reactions—*e.g.*, that between AgNO_3 and NaCl : AgNO_3 and K_2CrO_4 in 10 per cent. gel.

Enzymes are of a colloidal nature, as shown by the fact that they do not pass through parchment paper, or do so with extreme slowness.

Many colloids take up each other and form “colloidal-complexes,” or “adsorption-compounds.” This is one reason why it is so difficult to prepare pure enzymes. We are, perhaps, wrong in looking upon enzymes as chemical individuals, and it is possible—nay, likely—that various kinds of bodies may have conferred upon them properties which cause them to behave like enzymes: so that we have to deal with properties rather than substances. (Bayliss.)

The general trend of present-day work on the enzymes is to emphasise specificity, and to seek for the agents responsible for the cleavage of comparatively simple substances. (Halliburton.)

Perhaps the purest preparations known as yet are the invertase of Osborne, the amylase of Fraenkel and Hamburg, and the pepsin of Pekelharing.

The newest oxydase-enzyme is β -hydroxy-butyrase (Dakin and Wakeman), for it is the agent responsible for the conversion of β -hydroxy-butyric acid into aceto-acetic acid. It is present in the liver cells, and in aqueous extracts of the liver.

Toxins and Anti-toxins.—The reaction between these classes of bodies is capable of being referred to the mutual influence of different colloids.

Arrhenius, the distinguished physical chemist, has recently published an important and highly original work on Immuno-Chemistry (Macmillan, 1907), based on lectures given in California in 1904.

His object was to illustrate the application of the methods of physical chemistry to the study of the theory of toxins and anti-toxins.

The idea that the reciprocal action of toxin and anti-toxin is of the same nature as a chemical reaction is nearly as old as the study of these phenomena, which was initiated by Behring and Kitasato in 1890, in relation to diphtheria.

Two schools of thought seek to explain the phenomena from different points of view.

(1) The German, or chemical school, led by Ehrlich.

(2) The French, or physiological antagonism school, led by Metchnikoff.

The chemical hypothesis is that now generally accepted, although Ehrlich himself, curiously enough, made objections to the subject being treated in accordance with modern theories of chemistry.

Suffice it here to say that Arrhenius, in co-operation with Madsen and other workers, have satisfactorily applied the methods of physical chemistry to biological problems. These observers have proved that in many cases the reaction-velocities, law of mass-action, and other data are quantitatively measurable, and are congruent with the mathematical equations that represent the progress of chemical interactions. Coagulation or precipitation—*i.e.*, production of irreversible colloids—plays a very important rôle in the chemistry of antibodies, and the action of agglutinin is probably associated with a coagulating influence upon the cells. Serum-precipitins are also very important. They are to a high degree specific, and, as we know, have been

used to determine the origin of blood-stains for medico-legal purposes. (Uhlenhuth, Wassermann and Schütze, Hamburger.)

The older structural organic chemistry aimed principally at the synthetical formation of compounds, and the determination of constitution, and was mainly concerned with the final products of a given reaction.

More and more attention is now being devoted to the dynamical aspects of reactions, embracing the quantitative study of velocity, &c., as well as the molecular mechanism by which the interchange is effected. (*Chem. Soc. Ann. Rep.*, Vol. VI., 1909, p. 56.)

Pineal and Pituitary Glands.—The pineal gland appears to be a functionless vestigial structure, and extracts of it produce, on injection into animals, no physiological effects. Until recently the pituitary body was also regarded as an ancestral vestige, or, at least, of but little importance. It turns out, however, to be a structure which, like the thyroid and adrenals, is indispensable to normal life, and that it exerts its influence on the metabolism of the body by the formation of an internal colloid secretion which contains hormones (*ὁρμῶν*, to excite).

Dyes and Stains.—Many dyes in aqueous solutions are in the colloidal state, and by the use of the ultra-microscope they can be divided into two classes.

(a) Particulate dyes—*i.e.*, resolvable into granules.

(b) Un-resolvable dyes, non-particulate.

In the first group we find such dyes as violet-black, induline, and soluble aniline blue.

In the second—*i.e.*, non-resolvable dyes—we have methylene blue, thionin, Nile blue, and Magdala red. Fuchsin, methyl-violet, and neutral red are intermediate. Michaelis has made the interesting observation that these groups of dyes behave differently from a histological point of view.

The non-resolvable dyes have the most marked selective staining properties. The resolvable dyes are diffuse

stains. It is probably owing to the colloidal nature of some dyes that histologists are able to modify their results by adding to them, according to their feebly acid or basic qualities, phenol, or aniline, respectively. (Cotton et Mouton. *Les Ultra-microscopes*, p. 206.)

SUMMARY.

(a) The diffuse scattering of light in Tyndall's experiment is to be referred to material particles.

(b) Investigations of colloidal metallic solutions by the ultra-microscope show that the largest particles in the coarser hydrosols have magnitudes corresponding approximately to 60-80 $\mu\mu$ linear dimensions.

(c) Colloidal metal-sols can be prepared which exhibit scarcely any sign of inhomogeneity, and can hardly be distinguished from crystalloid solutions. There are innumerable intermediate grades.

(d) The smaller metallic particles in hydrosols possess a persistent and lively oscillatory and translatory movement which, in several respects, differs from typical Brownian movement.

(e) In many reversible colloids, and in solutions of dyes the material particles are accessible to direct observation.

ART. XIII.—*The Present Position of Tuberculin Therapy.*^a

By WILLIAM LEGGETT, M.D. Univ. Dubl.

(Continued from page 185 and concluded.)

THAT the use of tuberculin, as a diagnostic agent in man, is of service cannot be denied; but, as is to be expected in dealing with a subject of the kind, numerous disadvantages have been discovered in connection with its use.

It has been stated that in a proportion of cases the injection may light up again an infection which has

^a A Thesis read for the Degree of Doctor of Medicine in the University of Dublin, June 29, 1910.

become quiescent; that there is danger of actually inoculating living virulent bacilli in the vaccine. It is unsatisfactory and inadvisable to use the test if the patient's temperature is as high as 100° F.; that the reaction is obtained not only in cases of active tuberculosis, but also in old quiescent cases, and in these there is danger of re-starting the disease. Koch claims correct results in 99 per cent. of tests; but this even, acknowledging perfect technique, seem too high when one considers the very different results of almost all other experimenters. However, Koch was probably less guilty of giving large doses and of selecting unsuitable cases.

Wright, in his researches, found a period of intoxication varying with the amount of vaccine injected, during which the resistive power of the blood was reduced.

Following this negative phase was a positive one, with increased power of resistance to bacteria; and so frequent doses of tuberculin were to be avoided as increasing the negative but not the positive phase.

Wright also found that the formation of anti-bacterial substances in the blood was not proportional to the amount of vaccine administered. Very small doses of tuberculin were consequently given under constant control of the opsonic index during the negative phase. The dose is too large if the length of the negative phase increases, but if it decreases the dose is apparently correct. This method was employed in all sorts of localised tubercular lesions, except pulmonary, and most satisfactory results were attained in cases of ulceration of the skin, glandular swelling, lesions of bones, joints, &c.

These results, of course, were most gratifying. But most observers, including Wright, acknowledge the difficulty of understanding the uncertain behaviour of the opsonic index, and it is in cases of pulmonary tuberculosis that the fluctuation is extremely large; so large that slight bodily exercise, such as short walks, by causing auto-inoculation of toxins, produce wide variations of the index. However, there is no doubt that Wright, by

means of the opsonic index and very small graduated doses, has produced most valuable and satisfactory results.

At the Brompton Sanatorium, Drs. Paterson and Inman made the valuable observations that the opsonic indices of patients under treatment indicated that exercise supplied the stimulus necessary to induce artificial auto-inoculation, and that systematic graduation of the exercise will regulate auto-intoxication in point of time and amount. With the aid of the opsonic index the stimulus can be regulated with scientific accuracy, and its results more certainly and quickly obtained.

The following is a brief account of the various forms of tuberculin ⁹:—

Tuberculin T. (Koch, 1890).—A clear, dark yellow, or brownish fluid, obtained by filtering through a porcelain filter, a glycerine broth culture of tubercle bacilli which has been evaporated on a water bath, to one-tenth of its volume.

Tuberculin T. R. (Koch).—Young, highly virulent bacilli are dried in vacuo, then comminuted by machinery. The dust thus obtained is heated with distilled water and the mixture placed in a centrifuge making 4,000 revolutions per minute. In this way an opalescent fluid (T. O.)—possessing analogous properties to the old tuberculin—and a deposit are obtained. The latter is then emulsified with successive quantities of water and constitutes the new tuberculin or T. R., which is sold in bottles containing 2 mgms. per c.c. of solid bacterial substance. The occasional presence of living tubercle bacilli, capable of multiplication, in the new tuberculin has led to occasional accidents. Wright and Douglas found that heating to 60° C. for one hour sufficed to kill any bacteria, and did not impair the tuberculin.

After tubing-off into appropriate doses it is, therefore, well to thus sterilise the tuberculin before administration. Inasmuch as the T. O. thus obtained gives no precipitate with glycerine, while the T. R. does, it is held that the former contains those elements of the bacilli

which are soluble in glycerine, and are, therefore, similar to those contained in the old tuberculin. The T. R., on the other hand, is supposed to be free from these dangerous elements. All the immunising substances of the T. O., according to Koch, are contained in the T. R., and a man immunised with the T. R. will not react against a large dose of T. O.

Tuberculocidin (Klebs)¹⁰.—Klebs, in 1901, came to the conclusion that the deleterious substances contained in T. O. were of an alkaloidal nature. These he endeavoured to remove, and to the substance thus obtained he gave the name tuberculocidin.

Tuberculo-setorin (Maksuto).—Maksuto, in 1897, raised the objection to tuberculin that it was prepared from bacilli grown on artificial culture media, and that the chemical constituents of these media, and their disintegration products introduced a complicating factor. A toxin so obtained, he held, was not necessarily identical with the specific toxin of the bacillus. He, therefore, made extracts from the tuberculous tissue of diseased guinea-pigs, and from this material obtained a tuberculotoxin free from bacilli and capable of producing immunity in animals in about three months.

Tuberculol.—Landman, in 1898, described a preparation in which the bacilli were extracted with normal saline solution, distilled water, and glycerine, at progressively increasing temperature, the first extraction being made at 40° C., and the last at 100° C., the different extracts being then added together. This was called "tuberculol."

While any of the various preparations can produce the reaction, Koch's old tuberculin is now almost universally used for diagnostic purposes.

For purposes of treatment T. R. and B. E. (Koch) have been most widely used, and seem to give results at least as satisfactory as those got by any of the others. Opinions differ, however, as to the relative merits of the vaccines prepared from the bovine and human types of bacilli. In

the treatment of other bacterial diseases it has been found that the best results are obtained by using a vaccine prepared from the patient's own infecting organism, and we would expect the same to hold for tuberculosis.

Several distinguished observers, however, who have experimented on the subject have been led to a very different conclusion. It has been shown that though cattle are practically never infected by human bacilli they can be most completely immunised to their own form by using a vaccine prepared from the human type, and some observers, notably Pottenger,¹¹ believe that in treating human beings the best results are obtained by using a bovine vaccine where the infection is the human type and *vice versa*. He further states that if the injection of tuberculin prepared from one type of bacilli causes a rise in temperature the injection of that prepared from the other type will immediately reduce it -- the one apparently acting as an antidote to the other.

Allen¹² argues from this that if equal parts of human and bovine tuberculin were mixed together they would neutralise and give no result on injection. He has used such a mixture in a large number of cases, but, instead of finding it inactive, has obtained results so satisfactory that he has now discarded in its favour the ordinary tuberculin.

Of the value of tuberculin there can now be little doubt. Satisfactory results of its use in all forms of tuberculosis have been published, and those who have used it extensively are practically unanimous in considering it superior to all other methods of treatment. What form it may ultimately take it is at present impossible to say. A great step in advance would be made if a vaccine could be prepared free from toxic elements.

In pulmonary and laryngeal tuberculosis, in which the treatment has been largely used, we find from statistics published by various observers that about 20 per cent. more cures are got where hygienic-dietetic and tuberculins are carried out together than where the former is

used alone. The difference is most marked in moderately advanced cases, incipient cases doing almost as well under sanatorium treatment alone. Excellent results have also been got in cases treated at home often amid very unhygienic surroundings.

The results got in the treatment of tuberculosis of other organs have been very encouraging, but so far the number of cases reported has been small. Most observers agree that in surgical tuberculosis the use of tuberculin tends greatly to lessen the necessity for operative interference and to hasten the healing process where operations have been performed. Judging from the literature on the subject, practically all cases of tuberculosis give a positive reaction. At the same time it must be remembered that certain writers (Otis, Bandalier, and Roepke) consider that a positive reaction has been found in syphilitics, so that unless there is some clinical evidence of the disease, the patient should not, as a rule, be definitely declared tuberculous.

While, however, tuberculin may not be an absolute proof of tuberculosis, the fact that it is positive in 80 or 90 per cent. of the cases makes it a most valuable diagnostic agent. In cases where the signs are dubious, and the general condition of the patient justifies the use of the test, it should be employed, and a positive reaction to a moderate dose may be looked upon as indicating tuberculosis almost as certainly as finding bacilli in the sputum.

The attempt to apply the opsonic index method of Wright to the diagnosis of this disease has not been so successful as has been its use in therapeutics, and the amount of time and labour necessary for its technique is scarcely justified by the results.

For the purpose of treatment, tuberculin has been administered in a variety of ways:—By intravenous injection, in orals, by inhalation, dermically and subcutaneously. All these methods except the last are said to be of little value, and the great majority of authorities

have come to the conclusion that the subcutaneous method is by far the most exact, reliable, and efficacious.

The intravenous injection was recommended by Koch in the belief that a higher degree of immunisation could be obtained than by the subcutaneous method. He found in his first researches into the agglutination of tubercle bacilli that the agglutinating power possessed by the subjects of tuberculin treatment was to be interpreted as an immunising process, and that in general a high agglutination value denoted a high grade of immunity. But it was a fact of regular occurrence that the agglutinating power of patients treated with tuberculin subcutaneously could be raised still further by giving the same preparation intravenously. Hence Koch's idea. This has now been disproved, and as its only advantage—that of rapidity of action—is more than counter-balanced by the dangerously violent reaction sometimes produced the method has been abandoned. Tuberculin inhalation has been advised with a view to direct local action, but has the great disadvantage of uncertainty of dosage. Many workers claim to have obtained good results from the oral method of administration; others, however, condemn it, believing that, provided the epithelial lining of the alimentary tract be intact, very little absorption takes place, and that it is probably destroyed or greatly altered by digestion. At present a definite opinion cannot be pronounced. Should the method prove successful, it would be more acceptable to the patient than the subcutaneous injection, besides the possibility of the patient being able to administer the toxin himself. Administration per cutem by inunction has been practised, and it is claimed for it that, owing to the small amount of absorption which takes place from the skin surface, it is specially suitable for patients exhibiting hypersensibility to the toxin. Here, again, the great objection is the absence of absolute control over the dosage. By means of suitable dilutions the toxin can be administered in these cases in sufficiently small doses and with much

greater precision by the subcutaneous method. Paterson's¹³ method of administration by means of auto-inoculation has given very good results. The inoculations are induced by exercise, and the dosage is increased by gradually increasing the exercise from short walks up to hard manual labour. The great danger of this method is the liability to overdosage, and it probably should not be employed unless the patient can be kept under constant supervision, and his progress regulated by means of frequent observations of the temperature, pulse, &c. It seems doubtful whether any advantage is gained by thus treating patients with the toxins elaborated by their own bacilli.

Subcutaneous injection ensures exactitude of dosage and absorption in an unaltered form, and is at any rate for the present the most suitable method of administration. The most difficult point in connection with treatment by this means is the selection of the dose and the interval between the doses. The literature of the period (1890-91), when tuberculin was first introduced by Koch, frequently contained reports of patients who were excessively over-dosed, and in some instances killed by overdosing. It is only those who, from the first, used very small doses, who continued to use this form of treatment. Denys and Wright are specially mentioned in this connection as being responsible for pointing out the value of small doses.

The first dose should be so selected that a reaction may be avoided as far as possible, but in spite of all precautions slight reactions will occasionally occur during the course of treatment.

The susceptibility to tuberculin varies greatly both in different persons and in the same individual at different times, and so the great necessity for careful treatment of each individual patient.

When first used, tuberculin was given every day, but this was soon found to be wrong, as even slight reactions may not be exhibited until forty-eight hours, or even

sixty hours; hence the danger of giving a dose oftener than twice weekly. When large doses are reached, intervals of seven to fourteen days should be given. It is in the proper gradation of the doses that experience and judgment are necessary, since objective reactions are unnecessary and should be avoided. In this lies the key to successful treatment by tuberculin. It should be remembered that too little will not injure, but too much may provoke a serious reaction and hypersensibility, and the treatment will have to be discontinued.

The view ¹⁴ that the curative process of tuberculin takes place only with objective signs of reaction is erroneous.

Clinical observation in cases of lupus and of laryngeal tuberculosis shows that a local effect may become evident by hyperæmia without a feeling of illness or appreciable rise of temperature. So, with sufficient care, it should be possible to carry through a course of tuberculin treatment to a finish without appreciable rise of temperature and without injuring the general health.

Of course, suitable cases must be chosen, and the conditions which contra-indicate the use of the vaccine must not be forgotten.

The main object of the treatment is the application of the remedy at the earliest possible stage of the disease, for at this stage tuberculin exerts its full action. It is not to be supposed that tuberculin is a cure for all forms of tubercular disease. In fact it is not, in the strict sense of the term, a curative agent at all, as, for instance, anti-diphtheritic serum is, but it is a reliable immunising agent. In the first case an antitoxin already made is introduced into the body; in the second case it is necessary that a reaction, due to the introduction of the tuberculin, should take place, and this reaction results in the formation of antibodies.

The organism has to produce its own protective substances.

Tuberculin ¹⁵ can exert no curative effect on the secondary purulent conditions due to other bacteria, such

as the streptococcus found in advanced cases of phthisis; so that not only is tuberculin useless in these advanced cases, but much harm can be caused by the possibility that severe reactions may give an opportunity for the extension of the secondary disease.

Disregarding the warning of Koch, it was partly due to the use of tuberculin in cases of this kind, and the consequent bad results, that led to the remedy falling into disrepute. Some reserve of physical strength and power of resistance are necessary for active immunisation. Definitely progressive forms of the disease, where there is much destruction of living tissue, are not suitable for tuberculin treatment.

It should never be forgotten, in selecting cases for treatment, that, as a rule, the pathological alterations in the tissue are more extensive than is supposed, and so tuberculin is used probably in cases which are more severe than is intended.

Hence the risk of depreciating the value of the remedy as a curative agency.

It appears to be generally acknowledged that tuberculin-treated patients improve in appearance, and cough, expectoration, fever and other symptoms become less distressing: so that here we have a most useful therapeutic agent for relieving special symptoms.

There appears to be some diversity of opinion as to what cases should be excluded. Koch and others object to the use of tuberculin in patients who have not a normal temperature: but this view is not upheld by most authorities on the subject.

It has been stated that patients with great dyspnoea, night sweats, recent hæmoptysis, meningitis, heart disease, nephritis, great glandular enlargement, diabetes, epilepsy, and functional nervous disorders should be excluded.

Again, others say there is no logical reason for this exclusion except in the severer forms of these diseases, and that good results have been got in cases with well-

marked Graves's disease with nervous disturbances, and in diabetes—tuberculin having produced a good influence on both diseases.

Judging from the experience and opinions of the majority, the remedy should not be used if there is fever, advanced disease, or secondary infection.

In conclusion, I think it may be stated that whatever ills and disasters have been laid to the charge of tuberculin, those who have constantly used it, both for diagnosis and treatment, and have, therefore, established some claim to be heard, agree with Koch that it is an invaluable key to the early diagnosis of pulmonary tuberculosis. It rarely deceives, and never does harm, in the expert's hands, though it is dangerous in the hands of the inexperienced. In an article in the *Practitioner*, February, 1910, Dr. W. C. Wilkinson, of Sydney, writes¹⁶:—"In the early stage which tuberculin reveals with such certainty it is the remedy *par excellence*. Few will attempt now-a-day to dispute that, in doubtful cases of tuberculosis, when clinical evidence and physical signs are indefinite, the negative reaction, obtained according to instructions given by Koch in 1890, excludes with certainty the existence of a tuberculous lesion." The same writer states that he has never met a case of pulmonary tuberculosis exhibiting tubercle bacilli in the sputum, in which the tuberculin reaction did not occur. He also asserts that, as a result of treating the first stage of pulmonary tuberculosis with proper doses, though it may be necessary to repeat a course, he has never seen a case pass into the second stage (120 cases). Being aware of an experience of this kind, medical men of to-day have an opportunity of perceptibly reducing the death-rate due to this dread disease; and the suffering and misery associated with the second and third stages would be largely mitigated. It is well known that pulmonary tuberculosis may be months old before the most expert diagnostician can detect its presence; also, that the health may be seriously affected by a tuberculosis which is latent: and

that sanatorium methods have frequently failed to restore health in these latter cases.

Why not, then, make use of this test, since a dose of .001 c.c. old tuberculin has, in a large percentage of cases, proved the existence of tuberculosis, and cases, on having been treated with this remedy, have rapidly improved in health.

Taking all the facts and opinions into consideration, I would say that tuberculin, in careful and experienced hands, is a most useful adjunct to the diagnosis and treatment of tuberculosis.

Since this paper has been written the much-lamented death of Professor Koch has been announced.

REFERENCES.

- ⁹ Allen. Vaccine Therapy and Opsonic Method of Treatment.
- ¹⁰ Klebs. Wiener medizinische Wochenschrift. 1891. No. 15.
- ¹¹ Pottinger. Diagnosis and Treatment of Pulmonary Tuberculosis.
- ¹² Allen. Vaccine Therapy and Opsonic Method of Treatment.
- ¹³ Patterson. Graduated Labour in Pulmonary Tuberculosis.
- ¹⁴ and ¹⁵ Bandalier and Roepke. Tuberculin in Diagnosis and Treatment.
- ¹⁶ Practitioner. February, 1910.

TREATMENT OF "PARALYTIC KNEE."

At the Congress of the French Association for the Advancement of the Sciences, held at Toulouse, in August, 1910, Dr. Menci re, of Rheims, explained his mode of proceeding for musculo-tendinous grafting in the treatment of the paralytic knee. He repairs the lame femoral quadriceps with a girth graft (*greffe en sangle*) which crosses above and below the knee-cap and the tensor fasci  lat . The operator reinforces this grafting by inserting the tendon of the adductor magnus on the tibia in the tubercle by means of a long fibrous strip dissected out of the inferior part of the tensor fasci  lat . Dr. Menci re further insists upon the necessity of tension-grafting. This point he considered from his very first grafting operations as an essential one, and with this purpose in view he points out the position that is to be given to the limb during the grafting, and in which also it must be kept till the wound has cicatrised: Knee in extension, hip drawn towards the abdomen at an angle of about 140 .

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Gall-stones and Diseases of the Bile-ducts. By J. BLAND-SUTTON, F.R.C.S. Eng.: Surgeon and Lecturer on Surgery to the Middlesex Hospital, and Member of the Cancer Investigation Committee. With Fifty-three Illustrations. New and revised Edition. London: James Nisbet & Co. 1910. Cr. 8vo. Pp. viii + 256.

ONLY three years have passed since this work first appeared. But in that brief space a great change has taken place in the standpoint from which diseases of the gall-bladder and bile-ducts are regarded. Mr. Bland-Sutton has adopted the new pathology with all the enthusiasm of a neophyte.

The key-note is struck in the very first paragraph of the first chapter, which now concludes with these words: "The portal vein is also the channel by which micro-parasites (such as amœbæ, echinococcus-embryos and flukes), bacteria and their toxins from the intestines, are conveyed to the liver." "During the last five years," writes the author in his preface to the new edition, "our knowledge of the diseases of the gall-bladder and bile-ducts has undergone a complete change. Observations in the *post-mortem* room and in the operating theatre have led physicians and surgeons astray. The opinion that many diseases associated with gall-stones are due to infections ascending the bile-ducts from the alimentary canal has proved to be wide of the mark. Experimental pathology teaches that the liver is an organic filter as well as a laboratory. Many serious diseases of the bile-ducts are caused by infection from contaminating elements eliminated from the blood of the portal circulation and discharged into the outflowing bile. The

majority of the disturbances which come under the surgeon's cognisance in connection with the canal-system of the liver are 'descending infections.'"

Mr. Bland-Sutton gives effect to the new doctrine of "descending infections" in a special and entirely new chapter on "Typhoid Infections of the Gall-bladder." The elimination of micro-organisms by the liver was experimentally proved by Professor Welch, of the Johns Hopkins Hospital, Baltimore, U.S.A., in 1891. He found that when a culture of the typhoid bacillus was injected into the venous circulation of a rabbit, the bacilli appeared in the bile five days later. "Pathogenic micro-organisms," writes Mr. Bland-Sutton, "conveyed by the portal circulation into the liver are discharged with the bile, but in the process of elimination they infect the bile-ducts and especially the gall-bladder." The relation of the typhoid bacillus to cholelithiasis is discussed in Chapter V.

There are now fifty-three illustrations in the text, compared with forty-seven in the first edition. One of these—53—however, formed the tinted frontispiece of the former edition, so there are only five new figures—those numbered 15, 31, 33, 46, and 53. The present edition contains 256 pages as against 233 in its predecessor, but the book is still of moderate and very convenient size. It is beautifully printed on excellent paper, and is tastefully bound.

The Johns Hopkins Hospital Reports. Vol. XV.

Baltimore: The Johns Hopkins Press. 1910.

THIS volume of reports is very largely devoted to a study of lobar pneumonia from the clinical aspect, twelve out of the fifteen papers which are contained in it being devoted to the consideration of phenomena associated with that disease. During the sixteen years, 1889-1905, 658 cases of lobar pneumonia were treated in the Johns Hopkins Hospital, and the present series of studies are for the most part derived from an analysis of the

symptoms, physical signs, complications, &c., observed in these cases. It is rather remarkable that in the entire series no case of pneumococcal peritonitis seems to have occurred secondary to the pulmonary involvement, but perhaps this is to be explained by the fact that comparatively few of the cases were young children. Pericarditis was met with 35 times, and proved a most fatal complication, 31 out of those who were affected dying from it. The association of empyema with pneumonia receives careful treatment at the hands of Dr. McCrae, whose paper on this subject, and also that on "Delayed Resolution," are well worthy of careful study by all clinicians. Dr. McCrae admits the difficulty at times of diagnosing an empyema, but does not, as far as we could discover, point out that one of the difficulties arises from the fact that the empyema is so often confined by firm adhesions over the exact area of the lung that had previously been the site of consolidation. It is this, of course, that accounts for the absence of cardiac displacement—a point to which he calls attention. In all doubtful cases Dr. McCrae very wisely advocates the use of the exploring needle. Our own practice is to explore in all cases in which the smallest element of doubt exists, and we think that the importance of this aid to diagnosis cannot be too strongly insisted on. Carefully carried out it is practically without risk, and if it were more often employed we believe that fewer deaths would be ascribed to unresolved pneumonia. Of the other papers on pneumonia perhaps the most interesting is that on "The Leucocytes in Acute Lobar Pneumonia." The records in 582 cases are analysed, and some interesting results are arrived at. Other articles deal with Terminal Pneumonia, Venous Thrombosis in Pneumonia, Pneumococcal Arthritis, and Pneumococcal Meningitis. The last paper in the Reports deals with Cerebro-spinal Meningitis and its Serum Therapy at the Johns Hopkins Hospital. The paper, which extends to nearly 150 pages, is too lengthy and elaborate for any analysis here, but will undoubtedly prove of the greatest value to all who are called upon to

deal with cases of cerebro-spinal meningitis. Every aspect of the subject as represented by a fairly extensive group of cases is dealt with, and full details regarding the method of administering the serum are given. The whole volume reflects the greatest credit on the staff of the Johns Hopkins Hospital, but those who are familiar with these Reports will know that this is nothing new.

Meteorology: Practical and Applied. By SIR JOHN MOORE, M.A., M.D., D.P.H. Dubl., D.Sc. Oxon. London: Rebman. 1910. Demy 8vo. Pp. xxvii + 492.

STUDENTS of Meteorology will welcome the appearance of the second edition of Sir John Moore's "*Meteorology: Practical and Applied.*" A considerable amount of new matter has been added, and the size of the book increased, although several chapters of the former edition have been condensed into one in the new. This condensation is an improvement, as the chapters referred to dealt with the work of the United States Weather Bureau only, for which the space allotted in the new edition seems quite ample, especially as it has been supplemented by a new chapter on the Meteorological Service of Canada. The most important of the other additions is the account given of the recent researches which have been carried out on the dynamics of the upper atmosphere, to which another chapter has been devoted. Frequent references to quite recent scientific literature, which occur throughout the whole book, show that the author has kept thoroughly abreast of modern developments of the science. A feature of the book is the very full and clear description which has been given of a large number of the most improved forms of recording instruments.

The best and most interesting parts of the work are, in our opinion, those which treat of weather forecasts, clouds, winds, and climate. The theories advanced in explanation of the various phenomena seem to us less

satisfactory. It is confusing to the general reader to be confronted with several different theories, and it would have been an improvement if all those which are of doubtful validity, or admittedly discredited, had been omitted, even at the sacrifice of some historical interest.

The book is very readable apart from its scientific interest, owing to the vast and varied amount of information it affords respecting all the most remarkable meteorological events which have been recorded up to the present time. The concluding chapters deal in a masterly manner with the connection between climatic changes and certain epidemic diseases, a subject which will be of practical interest to a large circle of readers, and on which the author speaks with peculiar authority.

The book should form a very useful work of reference, and its excellent indexes and tables will aid materially in attaining this end.

J. R. C.

Vaccine Therapy and the Opsonic Method of Treatment.

By R. W. ALLEN, M.D., B.S.; late Clinical Pathologist to the Mount Vernon Hospital. Third Edition. London: H. K. Lewis. 1910.

WE have nothing but praise for Dr. Allen's book on vaccine therapy, which has now reached a third edition. A standard book on the subject is now an essential part of every practitioner's equipment, and in the present volume the reader will find all the information he requires expressed lucidly and practically. Dr. Allen is plainly an enthusiast, and in consequence we welcome all the more his admission, or rather contention, that obstinate adherence to the opsonic index will only tend in the future to impede the march of progress. Undoubtedly, as he states, vaccine therapy would never have occupied the place it does to-day but for opsonic determinations; but continued insistence on its use would prove a bar to the employment of vaccines in general practice, and would also limit vaccine treatment to the rich owing to the incident expenses. From very early days it appeared

plain to many clinical observers who made use of vaccines that the technique regarded as essential by pathologists, who, by the introduction of vaccines, were almost for the first time, in some cases, brought into personal contact with actual living patients, was unnecessary in many cases, and it must be a source of gratification to many of them to find, as has undoubtedly occurred, that many pathologists of late have begun to look upon a determination of the opsonic index as only necessary in cases presenting unusual or unexpected symptoms. As Dr. Allen points out, the index is still of great value both in diagnosis, and occasionally in treatment, but as a routine measure it is gone. The edifice which Sir Almroth Wright has raised by its means, however, persists, and each year adds to its structure. Dr. Allen has closely followed the development of the subject, in which development, indeed, he has himself taken no small part, and in consequence this volume remains an up-to-date and accurate guide. In addition to containing details as regards the individual vaccines that are employed, and the method of using them, some useful introductory chapters on opsonins and on the preparation of vaccines are included. An adequate index facilitates reference. The book is nicely bound, and well printed.

How to Cut the Drug Bill. By A. HERBERT HART, M.D., M.Ch., Durh.; M.R.C.S. Eng.; L.R.C.P. Lon.; L.S.A. Lon., &c., &c. London: John Bale, Sons & Danielsson, Ltd. 1910.

THIS little booklet is intended for practitioners who supply their own medicines. It contains a large number of excellent formulæ which can be produced at prices some 50 per cent. under the pharmacœpial preparations. We notice that the therapeutic remedies are in every case combined with flavouring agents well calculated to make the prescription palatable as well as effective. The book cannot but be useful to those for whom it is designed.

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF STATE MEDICINE.

President—E. J. McWEENEY, M.D.
Sectional Secretary—W. A. WINTER, M.D.

Friday, April 15, 1910.

The PRESIDENT in the Chair.

The History of the Prevention of Small-pox.

DR. KIRKPATRICK dealt with the history of the methods that have been from time to time adopted to effect the prevention of this disease. (His paper was published in full in the numbers of the Journal for May and June, 1910, at pages 337 and 410).

SIR JOHN MOORE thought the failure of the present system of dealing with small-pox in the United Kingdom was in the lack of re-vaccination. The example of Germany was an example for the world. Taught by the lesson of the pandemic of 1870-71, the Parliament of the German Empire passed a compulsory vaccination law in 1874, in accordance with which every child must be vaccinated before reaching the age of one year, and re-vaccinated before twelve years. The result of the system had been shown by the slides. In Germany the hospital treatment of small-pox presented no difficulty: there was no fuel to catch fire when a spark alighted in the centre of one of the German cities. Far different would it be even in well-vaccinated Ireland. Primary vaccination in infancy conferred an absolute immunity for the time being; but whether it was owing to the rapid growth of the body and the multiplication of unprotected cells, that immunity

was transitory, and the necessity arose for re-vaccination at an age approaching puberty, when anabolism and katabolism were more nearly balanced. Re-vaccination, he ventured to think, in most cases established a life-long immunity. It was with dismay that one marked the terrible craze of anti-vaccination that was creeping into Ireland. It was a serious matter that in the south-eastern part of Leinster there should be a decided rebellion against vaccination. Dr. Kirkpatrick could render no more valuable service to the country than to take his slides down to Enniscorthy and invite the people to go and see them.

DR. DONNELLY said the Section, and indeed the whole country, owed a great debt of gratitude to Dr. Kirkpatrick. He believed that the present outburst of anti-vaccination was largely due to the fact that nowadays even medical men in Ireland did not see small-pox at all; it was taken for granted that it would not come. At present there are many false statements spread abroad by papers, such as the *Vaccination Enquirer*. About 10 per cent. were unvaccinated, and when the spark came in 1895 small-pox spread among those who were unvaccinated, and also among those who were not re-vaccinated. At the time, certain persons in the hospital to which he was attached refused to be re-vaccinated, and got an attack, but those who were re-vaccinated did not. When the epidemic came there was no trouble in getting the people generally to be re-vaccinated, and the result was that the small-pox was stamped out in a little over a year. Something strong ought to be done to counteract the wave of anti-vaccination, and one of the best things would be to educate the people by having such lectures as we have just listened to delivered in various centres throughout the country.

DR. E. J. M'WEENEY agreed with the suggestions as to the education of the people. The mere showing of Dr. Kirkpatrick's slides demonstrating the ghastly thing that confluent small-pox was, and the marvellous effects of re-vaccination in the German Empire, would carry conviction to every mind. It was one of the great difficulties of the present Governmental system that it was not possible to bring in any highly competent outsiders and utilise them for purposes so intimately affecting the public weal. The Local Government Board was keen on having the anti-vaccination delusion stamped out, but its hands were tied, and it could employ only its own officials. He was responsible for the bacteriological purity of the lymph which was issued to

vaccinators in Ireland, and he could testify that it was produced with the utmost cleanliness and asepticity. Vaccine lymph had a very distinct bacteriological flora, which consisted of organisms found in the skin of the calf. When taken directly from the skin some had a certain pyogenic power, like the staphylococci found in the human skin; but after subjection to the action of glycerine they seemed to lose that power. The method of vaccinating direct from the calf to the arm had been found to give too vigorous a local reaction: the micro-organisms had not been attenuated, and the method was very properly not practised in Ireland. He thought Dr. Kirkpatrick might have referred to the services of Dr. Copeman in advocating the glycerination of lymph as a means of getting rid of the organisms or of their power of producing suppuration. It was an astonishing thing to learn that the infectious nature of small-pox was not recognised until 1780.

DR. KIRKPATRICK, in reply, said that although he had not actually mentioned Dr. Copeman's name, it was recognised that modern methods of preparing lymph were practically entirely due to his work, which he had in mind when describing the process.

A Quinquennial Census.

DR. W. A. WINTER read a letter from the Society of Medical Officers of Health, who are seeking to have a Quinquennial Census, or enumeration of the population, established. The letter had been referred by the General Council to the consideration of this Section. A resolution was proposed approving of increasing the frequency of the Census, and the Secretary was directed to forward it to the General Council.

AN AGREEABLE CASTOR OIL DRAUGHT.

CASTOR oil, black currants, water, of each equal parts. Put the ingredients into a bottle and shake them together until they are intimately mixed.—*Gazette des Hôpitaux*, 83 Année. No. 77.

APOLLINARIS WATER.

WE understand that the "Grand Prix" at the Brussels Exhibition has been awarded to this favourite beverage.

METEOROLOGICAL NOTES.

Abstract of Observations made in the City of Dublin, Lat 53° 20' N., Long. 6° 15' W., for the Month of August, 1910.

Mean Height of Barometer,	-	-	-	29.796 inches.
Maximal Height of Barometer (31st, at 9 p.m.),				30.292 „
Minimal Height of Barometer (26th, at 9 a.m.),				29.299 „
Mean Dry-bulb Temperature,	-	-	-	58.1°.
Mean Wet-bulb Temperature,	-	-	-	55.9°.
Mean Dew-point Temperature,			-	53.8°.
Mean Elastic Force (Tension) of Aqueous Vapour,				.415 inch.
Mean Humidity,	-	-	-	86.1 per cent.
Highest Temperature in Shade (on 12th),			-	69.5°.
Lowest Temperature in Shade (on 22nd),			-	49.1°.
Lowest Temperature on Grass (Radiation) (22nd),				46.1°.
Mean Amount of Cloud,	-	-	-	66.5 per cent.
Rainfall (on 22 days),	-	-	-	3.350 inches.
Greatest Daily Rainfall (on 1st),			-	1.102 „
General Directions of Wind,	-	-	-	W., E.S.E.

Remarks.

An unlovely, cloudy, rainy, windy month. Gales of wind from W. on the 19th and 26th. A thunderstorm, with vivid lightning, on the night of the 14th. Solar halos were seen on the 9th, 10th, 23rd and 30th, and a lunar halo on the 19th. This is a proof of the unusual prevalence of cirriform cloud in the upper atmosphere, which was a marked feature of the month. It was withal a cool month, the mean temperature being 0.6° in defect, and the thermometer never rising above 70° in the screen—indeed, on the 2nd it failed to reach 60° . Several fine meteors were observed about the middle of the month, but the clouded state of the sky seriously interfered with astronomical observations. In the Shetland Islands the weather was strangely fine and at times very warm. On the 6th the thermometer rose to 82° at Sumburgh Head and to 77° at Balta Sound.

In Dublin the arithmetical mean temperature (59.1°) was 0.6° below the average (59.7°); the mean of the dry-bulb readings at 9 a.m. and 9 p.m. was 58.1° . In the forty-six years ending with 1910, August was coldest in 1881 (M. T. = 57.0°), and warmest in 1899 (M. T. = 63.4°). In 1909 the M. T. was 60.0° .

The mean height of the barometer was 29.796 inches, or 0.101 inch below the corrected average value for August—namely,

29.897 inches. The mercury rose to 30.292 inches at 9 p.m. of the 31st, and fell to 29.299 inches at 9 a.m. of the 26th. The observed range of atmospheric pressure was, therefore, 0.993 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 58.1° . It was identical with the value for July, 1910. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.*) $\times .47$, the mean temperature was 58.8° , or 0.5° below the average mean temperature for August, calculated in the same way, in the thirty-five years 1871–1905, inclusive (59.3°). The arithmetical mean of the maximal and minimal readings was 59.1° , compared with a thirty-five years' average of 59.7° . On the 12th, the thermometer in the screen rose to 69.5° —wind, W.; on the 22nd, the temperature fell to 49.1° —wind, N.W. The minimum on the grass was 46.1° on the 22nd.

The rainfall was 3.350 inches on 22 days. The average rainfall for August in the thirty-five years, 1871–1905 inclusive, was 3.240 inches, and the average number of rainy days was 18. The rainfall, therefore, and the rain-days were above the average. In 1900 the rainfall in August was very large—5.871 inches on 17 days; in 1889, also, 5.747 inches were registered on 22 days. On the other hand, in 1884, only .777 inch was measured on 8 days. August, 1905, established a record for rainfall in this month in Dublin, for the measurement was 7.019 inches on 22 days, 3.436 inches having fallen on the 25th. In 1909 the rainfall was 1.300 inches on 13 days.

High winds were noted on 7 days, and attained the force of a gale (8) on the 19th and 26th. Temperature never reached 70° in the screen. A solar halo was seen on the 9th, 10th, 23rd and 30th. A lunar halo was seen on the night of the 19th. Fog was observed on the 8th and 9th. A thunderstorm occurred on the 14th. There were westerly gales on the 19th and 26th.

The rainfall in Dublin during the eight months ending August 31st amounted to 24.382 inches on 149 days, compared with 16.677 inches on 119 days in 1909, 17.244 inches on 135 days in 1908, 16.588 inches on 146 days in 1907, 15.425 inches on 139 days in 1906, 18.041 inches on 131 days in 1905, 16.808 inches on 135 days in 1904, 21.872 inches on 157 days in 1903, 18.456 inches on 133 days in 1902, 14.384 inches on 106 days in 1901, 9.455 inches on 96 days during the same period in 1887, and a thirty-five years' average (1871–1905) of 17.950 inches on 131 days.

At the Normal Climatological Station in Trinity College, Dublin. Mr. W. H. Clark, B.A., reports that the mean height of the barometer was 29.798 inches. The range of atmospheric pressure was between 30.296 inches at 9 p.m. of the 31st and 29.302 inches at 9 a.m. of the 26th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 59.0° . The arithmetical mean of the daily maximal and minimal temperatures was 59.2° . The screened thermometers rose to 71.9° on the 20th, and fell to 47.9° on the 22nd. On the 18th the grass minimum was 40.0° . Rain fell on 22 days to the amount of 3.246 inches, the greatest fall in 24 hours being 1.060 inches on the 1st. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 125.54 hours, of which 11.0 hours occurred on the 10th. In August, 1904, there were 183.75 hours of bright sunshine; in 1905, 121.9 hours; in 1906, 176.9 hours; in 1907, 151.4 hours; in 1908, 148.7 hours; and in 1909, 157.9 hours. The mean earth-temperatures were—at 1 ft., 60.0° ; at 4 ft., 57.7° .

At Ardgillan Castle, Balbriggan, Captain Edward Taylor, D.L., registered 4.31 inches of rain on 20 days, the greatest fall in 24 hours being 1.39 inches on the 1st. The rainfall was 0.77 inch in excess of the average and the rain-days were 3 in excess. Since January 1, 1910, 23.42 inches of rain have fallen on 141 days, the measurement being 4.92 inches in excess and the rain-days 17 more than the average.

According to Mrs. Olive F. Symes, at Druid Lodge, Killiney, Co. Dublin, 4.40 inches of rain fell on 20 days. The maximal fall in 24 hours was 1.67 inches on the 1st. The average rainfall at Cloneevin, Killiney, in August of the twenty-four years, 1884–1907, was 3.212 inches on 16.8 days.

Dr. Christopher Joynt, F.R.C.P.I., returns the rainfall at 21 Leeson Park as 3.380 inches, of which 1.140 inches fell on the 1st. The rain-days were 22. The total fall since January 1 amounts to 25.915 inches on 149 days.

Mr. George B. Edmondson reports that at Manor Mill Lodge, Dundrum, Co. Dublin, the rainfall was 3.53 inches on 21 days. The maximal fall in 24 hours was 1.42 inches on the 1st. The mean shade temperature was 59.1° , the range being from 74° on the 7th to 48° on the 10th.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 4.89 inches on 12 days; the heaviest fall in 24 hours was 1.50 inches on the 1st. The mean shade temperature

was 58.0° , the extremes being—highest, 71.5 on the 7th; lowest, 40.0° on the 21st.

According to Mr. R. Cathcart Dobbs, J.P., at Knockdolian, Greystones, Co. Wicklow, the rainfall for August was 5.440 inches on 18 days, compared with 0.825 inch on 7 days in 1909. The heaviest fall in 24 hours was 2.450 inches on the 1st. The total fall since January 1 amounts to 25.880 inches on 123 days, compared with 18.666 inches on 95 days in 1909.

At Clonsilla, Greystones, Co. Wicklow, Dr. W. Stewart Ross recorded a rainfall of 4.86 inches on 18 days. The greatest measurement in 24 hours was 1.93 inches on the 1st. The mean temperature was 56.3° , the highest being 69.0° on the 12th; the lowest, 43.0° on the 28th. Lightning was seen on the night of the 28th.

According to Mr. W. Miller, the rainfall in Cork City was 5.24 inches, or 1.75 inches more than the average, and the rain-days were 24. The greatest fall in 24 hours was 0.77 inch on the 3rd. The mean temperature of the month was 57.0° , which is 2.7° below the average. The thermometer rose to 69.0° on the 12th and fell to 46.0° on the 24th and 28th. The rainfall for 1910 up to August 31 was 25.30 inches on 153 days, compared with averages of 23.42 inches and 123 days respectively.

The Rev. Arthur Wilson, M.A., returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 6.22 inches on 26 days. The largest measurements in 24 hours were .80 inch on the 18th and .63 inch on the 3rd. At Dunmanway the first 10 days of the month were fairly fine and warm. The remainder of the month was wet. The average rainfall in August, based on the returns for the last six years, is 4.81 inches.

Mr. W. Holbrow reports a rainfall of 6.72 inches on 28 days at Derreen, Kenmare, Co. Kerry. The heaviest fall in 24 hours was .72 inch on the 12th. It was a wet, cold month—foggy from the 1st to the 13th.

At the Ordnance Survey Office, Phoenix Park, Dublin, rain fell on 19 days to the amount of 2.871 inches, the largest measurement in 24 hours being .865 inch on the 1st. The total duration of bright sunshine was 129.8 hours, the longest daily spell being 12 hours on the 10th.

Miss C. Violet Kirkpatrick measured 3.91 inches of rain on 23 days at Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, the largest record in 24 hours being 1.17 inches on the 1st.

PERISCOPE.

DUBLIN HOSPITALS' TUBERCULOSIS COMMITTEE.

A QUARTERLY meeting of the Dublin Hospitals' Tuberculosis Committee was held on Thursday, September 1st. Present—Sir John Moore, M.D., in the chair (and subsequently Sir Arthur Chance); Her Excellency the Countess of Aberdeen, Sir Charles Cameron, C.B.; Drs. M. F. Cox, Drury, Frank Dunne, De la Hoyde, Garland, Lieutenant Colonel Flinn, and the Hon. Secretary, Sir William J. Thompson. Letters were read from the Public Health Committee and the Cleansing Committee of the Corporation of Dublin in reference to the watering and cleansing of the streets in the city. Dr. Daniel's report for the past three months, the summary of the reports of the two nurses who are working amongst the consumptive poor of Dublin, and the summary of the report of the district nurse working in Terenure were submitted and approved. A Sub-Committee was appointed to draw up a resolution for submission to the Committee with reference to the limitations imposed on notification of tuberculosis under the present regulations under the Tuberculosis Act. The Committee considered the recommendation of the Dublin Hospitals' Board that lady almoners should be appointed by each of the Clinical Hospitals, who would visit the homes of the patients attending the out-door departments in order to make the hospital treatment more effective. Instruction and advice would be given in matters of health, fresh air, cleanliness, dietary, care of children, and in cases of necessity efforts would be made to obtain help suitable to each case by charitable organisations or through other means. The Committee, having had two and a half years' experience of the value of this system through the results to be seen in the summary of the work accomplished by their nurses for tuberculosis patients recommended by the hospitals and others, are in a position to support most strongly the recommendations of the Dublin Hospitals' Board.

The following is Dr. Daniel's Report:—

“ 56 HARCOURT STREET, DUBLIN.

“In presenting my report for the three months ended 20th August, 1910, I beg to say that during that period I made 31

visits to patients at their homes, and 41 visits were made by patients to my house. Total, 72 visits. I was able to have removed to Hospice, Harold's Cross, by Corporation ambulance, a man about fifty years of age in an advanced stage of pulmonary tuberculosis. By this means the danger of removing him in a cab, which is the usual method adopted, was avoided. At the same time I examined his only child, a girl, aged eighteen years, and, finding her free from tubercular disease, I was in a position to recommend her for a holiday at the Home in Sutton, previous to her getting an appointment as domestic servant. Other such cases occur from time to time, and in this way a great deal is being done by this Committee in the preventive treatment of tuberculosis. During the quarter I examined a number of girls for admission to the Holiday Home, Sutton. Most of them passed as suitable cases; two or three, however, were rejected, having symptoms of tuberculosis.

“JOSEPH T. DANIEL.

“30th August, 1910.”

The following is a summary of report of work done by two tuberculosis district nurses in Dublin during six months ended 20th August, 1910 :—

No. of cases attended—	135 old cases, 112 new cases—	Total	247
Of these, 24 died; the remainder are under treatment or have been dealt with as follows :—			
„ visits paid	- - - - -		2,995
„ average weekly attendances	- - - - -		115
„ cases notified from hospital	- - - - -		34
„ „ otherwise notified	- - - - -		78
„ „ improved so much that they were able to return to work again	- - - - -		24
„ „ sent to the Royal National Hospital, Newcastle, Co. Wicklow	- - - - -		5
„ „ waiting to be admitted to Newcastle Hospital	- - - - -		—
„ „ sent to other sanatoriums	- - - - -		16
„ „ gone or sent to friends in the country	- - - - -		12
„ „ sent to South Dublin Union for special tuberculosis treatment	- - - - -		9
„ „ admitted to North Dublin Union Hospital	- - - - -		2
„ „ admitted to South Dublin Union Hospital	- - - - -		4
„ „ admitted to the Hospices for the Dying	- - - - -		29

No. of cases attended who have been at Newcastle Hospital	18
„ deaths at patients' home - - - -	9
„ „ in institutions - - - -	15
„ families removed to more healthy homes - -	10
„ rooms disinfected - - - -	41
„ insanitary houses reported - - - -	12
„ sputum flasks distributed - - - -	24
„ families who received nourishment - - -	99
„ patients who received clothes, shoes, bedding, &c. -	67
„ families for whom rent is being paid while the breadwinner is at Newcastle or in the Dublin Unions - - - -	3
„ children of parents suffering from tuberculosis sent to the country through the Fresh Air Fund -	66
„ children boarded-out while the mother is in hospital	4
„ patients or their families for whom work has been obtained - - - -	13
„ children sent to schools or institutions after parents' death - - - -	—
„ each family, rough average - - - -	5
„ families occupying one room - - - -	57
„ families in which more than one person are affected	52
Average weekly income - - - -	14s. 6d.
Average weekly income when breadwinner is ill - - - -	4s. 6d.

A NEW SIGN OF CEREBRAL MENINGITIS.

M. A. SIGNORELLI describes a painful point behind the vertical ramus of the lower jaw, below the lobe of the ear, and in front of the mastoid process. The hyperalgesia of this point is manifest on pressure, sometimes slight, of the palmar surface of the finger tip. The hyperalgesia is well marked in all cases of meningitis, it usually persists for an hour and gradually ceases. This pain on pressure is found in all stages of the disease. When the syndrome of the disease is in all its fulness, especially in the irritative period, the retro-mandibular hyperalgesia point is the most marked sign. The sign is present even though the point of issue of cerebral nerves gives no pain on pressure. This sign with that of stiffness of the neck and Kernig's sign may be considered as conclusive proof of cerebral meningitis.

In Memoriam.

LOMBE ATTHILL, M.D. UNIV. DUBL., EX-PRES. R.C.P.I.

IN a ripe old age, and laden with professional honours, this estimable and well-known member of the Profession met his death with startling suddenness on Wednesday, September 14, 1910. DR. ATTHILL, who was in his eighty-third year, was on a visit to relatives at Rochester, Kent. He intended to catch a train at Strood station, but as he stood on the platform just before the train arrived, he dropped dead without a moment's warning.

LOMBE ATTHILL was born on December 3, 1827. He was son of the Rev. W. Atthill, a scion of an old East Anglian family, Second Wrangler of Cambridge University of his year, and subsequently a Fellow of Gonville and Caius College, Cambridge. His early education was carried on at Maidstone, and it is a pathetic circumstance that he was about to revisit the scene of his boyhood's school-days when death came to him.

In June, 1844, when sixteen and a half years old, he was bound as an apprentice to Mr. Maurice Collis, at that time one of the surgeons to the Meath Hospital and County Dublin Infirmary. Finding that the lad's classical education had been fairly good, Mr. Collis advised that he should enter Trinity College, Dublin. This advice was fortunately taken, and ATTHILL graduated in Arts and Medicine in the University of Dublin at the Spring Commencements held on the Shrove Tuesday of 1849. His father's unexpected death in January, 1847, led ATTHILL to cut short his five-years' apprenticeship, and to present himself for the Letters Testimonial of the Royal College of Surgeons in Ireland as soon as he had completed the three years' curriculum at that time required by the Royal Colleges of Surgeons in both England and Ireland. Having passed the examination successfully, he found himself a full-blown surgeon in July, 1847, at the very early age of nineteen and a half years.

During the following winter, ATTHILL was appointed an unpaid medical officer to the Fleet Street Dispensary, Dublin—an institution, supported by voluntary contributions, for the benefit of the sick poor, who were either prescribed for at the dispensary or visited at their own homes. It will be remembered that the Irish Famine was then at its

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height, dragging in its fatal train sickness and death. A few days after his twenty-first birthday ATTHILL exchanged this unsalaried appointment for the medical officership of a very poor dispensary district at Geashill, on the verge of the great Bog of Allen, King's County. He was paid a salary of £80 a year, but earned some £40 in addition from private practice. The district was so large he had to keep a horse.

Before the close of a second year of such starvation practice ATTHILL returned to Dublin, in which city he built up a good connection after years of hard work. His future fortune was secured when, in November, 1851, he entered on his duties as Resident Assistant to the Master of the Rotunda Lying-in Hospital. It is in connection with this famous institution that LOMBE ATTHILL's name will go down to posterity.

In 1860 DR. ATTHILL was elected a Fellow of the Royal College of Physicians of Ireland, which was then known as the King and Queen's College of Physicians in Ireland. As the years passed by, he was chosen to fill every office of trust in the College. In the year of his election as Fellow he was appointed Registrar of the College—an office which must be held by a Fellow. He filled this very important post for eight years, and on resigning it was at once elected a Censor on St. Luke's Day, 1868. In this capacity he served as Examiner for two years, and was in 1874 again appointed for a second similar term. In 1888 he was unanimously elected President of the College, and while occupying the Presidential Chair the Fellows appointed him their Representative on the General Medical Council in succession to Dr. Aquilla Smith, who had resigned after thirty-one years' service. DR. ATTHILL continued to represent the College on the Council until October, 1903, when, on the grounds of advancing age, he too resigned. From 1890 to 1903 he acted as Treasurer of the College.

In 1868 DR. ATTHILL was invited to join the staff of the Adelaide Hospital, Peter Street, Dublin, being allotted a small ward containing five beds for the treatment of "Diseases Peculiar to Women." He soon had a large extern "clinique," and his clinical lectures were much appreciated by the hospital class. These lectures were, by request, published in the *Dublin Medical Press*, from which they were reprinted

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under the title "Lectures on Diseases Peculiar to Women." This work proved most popular and ran through many editions—the seventh being published in 1882. It was reprinted in the United States of America, and was also translated into French. In his "Recollections" he tells us that he realised by the sales a clear profit of over £1,000. He attributes the success of the book to two rules which he laid down when writing it: One, to use the simplest language possible, avoiding abstruse terms; the other, while being just to other teachers, to state clearly his own views and the results of his own experience.

The pages of this Journal were from time to time enriched by contributions of sterling value from his pen.

In 1868 he performed his first ovariectomy, which was quite successful, notwithstanding several untoward circumstances. His connexion with the Adelaide Hospital terminated on his election as Master of the Rotunda Lying-in Hospital in November, 1875. In that Institution ATTHILL was privileged to inaugurate and to carry to a successful issue a complete and most salutary reformation—a reformation to which full effect was given under the able and intelligent direction of his successor in office, Sir William J. Smyly, who made the Rotunda the most perfect hospital for women in the Kingdom.

ATTHILL's professional career ended in the autumn of 1903, when, as has been stated above, he ceased to represent the Royal College of Physicians of Ireland on the General Medical Council. It had extended over nearly sixty years, and had proved eminently successful and distinguished.

DR. ATTHILL served as President of the Dublin Obstetrical Society, and more recently—from 1900 to 1903—as President of the Royal Academy of Medicine in Ireland. He was an Honorary Fellow of the Edinburgh Obstetrical Society and an Honorary Member of Gynaecological Society of Boston, U.S.A. In 1865 he became a Doctor of Medicine of the University of Dublin. A man of strong opinions, a ready speaker, endowed with many gifts of mind and heart, and one who had formed the highest ideal of professional honour, for many years he exercised the greatest and most beneficent influence in the Royal College of Physicians, from the meetings of which he was seldom or never absent before his retirement.

MEDICAL EDUCATION AND EXAMINATIONS IN IRELAND.

1910-1911.

MEDICAL students in Ireland, as elsewhere, have in the first instance to choose between University Degrees and Non-University Qualifications or Diplomas. Should they elect to try for a University Degree, their choice must lie between the University of Dublin, which requires a Degree in Arts before registrable Degrees in Medicine, Surgery, and Midwifery are conferred, the National University of Ireland, which—while not requiring a full Arts Degree—yet rightly insists on a liberal education in Arts, tested by more than one searching examination in the same, before a candidate graduates in the three branches of medicine already mentioned—Medicine, Surgery, and Midwifery, and the Queen's University of Belfast, in which also Arts occupies a prominent place. Under the Regulations of the School of Physic in Ireland (*vide infra*, page 293), considerable Professional Privileges are afforded to medical students in regard to the Arts Curriculum of the University of Dublin.

Outside the Universities, the chief Licensing Bodies are the Royal Colleges of Physicians and Surgeons. The position of the Apothecaries' Hall of Dublin as a Licensing Corporation under the Medical Act of 1886 has been defined by the appointment of Examiners in Surgery by the General Medical Council at the bidding of His Majesty's Privy Council.

The Royal Colleges of Physicians and Surgeons are in a position to give a first-class working qualification in Medicine, Surgery, and Midwifery—a qualification which is registrable under the Medical Acts, which is universally recognised as one of high merit, and the possession of which is attended by no disabilities, such as preventing its possessor from dispensing medicines or keeping open shop for the sale of medicines, if he is legally qualified to do so.

The Medical Schools in Ireland are—(1.) The School of Physic in Ireland, Trinity College, Dublin; (2.) The Schools of Surgery of the Royal College of Surgeons in Ireland (including the Carmichael College of Medicine and the Ledwich School of Medicine); (3.) The University College Medical School, Cecilia-street, Dublin; (4.) The Faculty of Medicine, Queen's University of Belfast; (5.) The School of Medicine, University College, Cork; and (6.) The School of Medicine, University College, Galway.

Facilities for Clinical Instruction in fully-equipped Medico-Chirurgical Hospitals exist in Dublin, Belfast, Cork, and Galway; but, as a rule, the Schools of Medicine in Ireland are not attached to a given hospital, or *vice versâ*, as is the case in London and other large centres of medical education. The student will, however, have little difficulty in selecting a hospital, in the wards of which he will receive excellent bedside teaching and have ample opportunity of making himself familiar with the aspect and treatment of disease.

The detailed information which follows is authentic, being taken directly from the published calendars of the respective licensing bodies.

REGULATIONS PRESCRIBED BY THE GENERAL MEDICAL COUNCIL.

With regard to the course of Study and Examinations which persons desirous of qualifying for the Medical Profession shall go through in order that they may become possessed of the requisite knowledge and skill for the efficient practice of the Profession, the General Medical Council have resolved that the following conditions ought to be enforced without exception on *all* who commence their Medical Studies at any time after Jan. 1, 1892:—

(a.) The period of Professional Studies, between the date of Registration as a Medical Student and the date of Final Examination for any Diploma which entitles its bearer to be registered under the *Medical Acts*, must be a period of *boni fide* study during not less than five years. For the purpose of this requirement the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration.

(b.) In every course of Professional study and Examinations, the following subjects must be contained:—

- (I.) Physics, including the Elementary Mechanics of Solids and Fluids, and the Rudiments of Heat, Light, and Electricity.
- (II.) Chemistry, including the principles of the Science, and the details which bear on the study of Medicine.
- (III.) Elementary Biology.
- (IV.) Anatomy.
- (V.) Physiology.
- (VI.) Materia Medica and Pharmacy.
- (VII.) Pathology.
- (VIII.) Therapeutics.
- (IX.) Medicine, including Medical Anatomy and Clinical Medicine.
- (X.) Surgery, including Surgical Anatomy and Clinical Surgery.
- (XI.) Midwifery, including Diseases peculiar to Women and to New-born Children. [By a recent decision of the General Medical Council the study of (XI.) must not commence till the student has held the posts of Clinical Clerk and Surgical Dresser.]
- (XII.) Theory and Practice of Vaccination.
- (XIII.) Forensic Medicine.
- (XIV.) Hygiene.
- (XV.) Mental Disease.

The first four of the five years of Medical Study must be passed at a School or Schools of Medicine recognised by any of the Licensing Bodies, provided that the First Year may be passed at a University, or Teaching Institution, recognised by any of the Licensing Bodies and approved by the Council, where the subjects of Physics, Chemistry, and Biology are taught.

A student who has, previous to registration, attended a course or courses of study in one or all of the subjects, Physics, Chemistry, or Biology, in any University, School of Medicine, or Teaching Institution recognised by any of the Licensing Bodies, may without further attendance be admitted to examination in these subjects: provided always that such course or courses shall not be held to constitute any part of the five years' course of professional study.

A graduate in Arts or Science of any University recognised by the General Medical Council, who has spent a year in the study of Physics, Chemistry and Biology, and has passed an examination in these subjects for the degrees in question, is held to have completed the first of the five years of medical study, provided that he has registered as a medical student with the General Medical Council.

The Examinations in the Elements of Physics, Chemistry, and

Biology should be passed before the beginning of the Second Winter Session.

The General Medical Council recommends the Licensing Bodies to require that the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries, British or Foreign, recognised by any of the medical authorities mentioned in Schedule (A) of the Medical Act (1858), provided that no Qualification in Medicine ought to be granted without evidence of Clinical Instruction in Infectious Diseases.

I.

UNIVERSITY OF DUBLIN.

DEGREES AND DIPLOMAS IN MEDICINE, SURGERY, AND MIDWIFERY; AND IN DENTISTRY.

The Medical School of the University of Dublin has for its official title the name of The School of Physic in Ireland. It is officered by University Professors and Examiners and by four King's Professors appointed by the President and Fellows of the Royal College of Physicians of Ireland, acting as Trustees of the Estate of Sir Patrick Dun.

MATRICULATION.

Students cannot be permitted to attend any of the Courses of Instruction in the School of Physic in Ireland until they have Matriculated. There is no special Examination; the Public Entrance and Term Examinations of Trinity College, or any other of the Preliminary Examinations recognised by the General Medical Council, being accepted as equivalent. The Matriculation Fee is Five Shillings. It is not necessary for Students to have their names on the College Books, or to attend any of the Academical duties of the University, unconnected with the School of Physic, unless they desire to obtain a Diploma or Degree in Medicine, Surgery, and Midwifery. Students may matriculate at the commencement of either the Winter or the Summer Session. The 17th of November is the last day of admission to the Winter Session. In the Summer Session the day varies a good deal according to the time at which Easter occurs, and the Courses of Lectures for which the Student proposes to enter.

WOMEN STUDENTS.

Women Students are now admitted to the Degrees and Diplomas in Medicine, Surgery, and Midwifery, on the same conditions as men. A special Anatomical Department, with separate entrance, dissecting-room, and reading-room, has been erected by the Board of Trinity College for their accommodation.

The Qualifications in Medicine, Surgery, and Midwifery, and in Dental Science, granted by the University are as follow :—

The Degrees are :—

1. Bachelor in Medicine.
2. Bachelor in Surgery.
3. Bachelor in Obstetric Science.
4. Doctor in Medicine.
5. Master in Surgery.
6. Master in Obstetric Science.
7. Bachelor in Dental Science.
8. Master in Dental Science.^a

The Diplomas are :—

1. Diploma in Public Health (formerly Qualification in State Medicine).
2. Diploma in Medicine.
3. Diploma in Surgery.
4. Diploma in Obstetric Science.

REGULATIONS FOR OBTAINING MEDICAL OR DENTAL DEGREES.

I. *Arts Course*.—1. In order to join the Medical or Dental School a Student must have either—

- (a) Passed a Junior Freshman Term Examination, exclusive of Trigonometry ; or—
- (b) Passed the Special Preliminary Examination held in March, the standard and subjects of which are those of the Hilary Junior Freshman Examination ; or—
- (c) Obtained at the Examination for Junior Exhibitions marks showing sufficient merit in the subjects of (a) or (b).

Note.—Rising Junior Freshmen desiring to begin their Medical or Dental Curriculum have the privilege of presenting themselves at either the Michaelmas Junior Freshman Examination (exclusive of Trigonometry) or the Supplemental Hilary Examination at the end of Trinity Term, without paying the May fee of the Junior

^a See page 330.

Freshman Year. But they obtain no academic credit for either examination beyond the right of entering the Medical or Dental School.

2. All Medical and Dental Students of undergraduate standing, who claim professional privileges in Arts, must attend at least one course of Arts Lectures in the Trinity Term of each year. The subjects of these lectures are as follow:—

Junior Freshman Year.

Mechanics (including Elementary Trigonometry) and English Composition.

Senior Freshman Year.

Logic (Formal) and English Composition.

Junior Sophister Year.

Astronomy and English Composition.

Senior Sophister Year.

Ethics and English Composition.

Note 1.—Students whose English Composition is unsatisfactory may be required to attend special lectures in that subject.

Note 2.—Students who enter the Medical or Dental School at the commencement of their Senior Freshman Year, and have obtained credit for only one term as Junior Freshmen, must, in the Trinity Term of the Senior Freshman Year, attend both the above Courses for Freshmen.

Note 3.—In order to obtain credit for the Lectures of the Junior Sophister Year, every Student must, in addition to attending the Lectures, pass an Examination in Astronomy at the end of the Term.

Note 4.—A Student who enters the Medical or Dental School as a Senior Sophister, and has not passed a Junior Sophister Term Examination which includes Astronomy, must attend, in the Trinity Term of the Senior Sophister Year, the Arts Courses of the two Sophister Years, as above.

In order to obtain credit for these Lectures he must pass an Examination in Astronomy as in *Note 3*.

3. Students who have entered the Medical or Dental School not later than the commencement of their Senior Freshman Year, and have obtained credit for such terms of Arts Lectures as they are required under Section 2 to attend in the Freshman Years,

will obtain credit for the Final Freshman Examination by passing—

- (a) The Preliminary Scientific Examination of the Medical School, or the Preliminary Scientific Dental Examination and the Examination in Dental Anatomy.
- (b) An Examination in Mechanics, Logics, English Composition, and one of the following languages :—Greek, Latin, French, German.

The Examination in Mechanics may be taken either at the ordinary Final Freshman Examination, or as in Section 4.

A Student need not have passed (a) in whole or in part before presenting himself for (b), but he must have passed both before the Trinity Lectures of his Junior Sophister year.

4. An Examination will be held in the Mechanics of the Final Freshman Course (including Elementary Trigonometry), at the date of each of the Preliminary Scientific Examinations.

5. No Student will be allowed to attend the Arts Lectures in the Trinity Term of the Junior Sophister Year until he has obtained credit for the Final Freshman Examination.

6. Students who have obtained credit for such attendance at Arts Lectures of the Sophister years as is required of them under Section 2, and who have made satisfactory progress with their Medical studies during those years (see Section 7), may present themselves for the Arts portion of their Degree Examination. This consists of Ethics and English Composition as in the ordinary Degree Examination.

7. The words “satisfactory progress” in Section 6 are thus interpreted. Before presenting themselves for the Arts Degree—

- (a) Students who have entered the School not later than the commencement of their Senior Freshman Year must have passed Part II. of the Intermediate Medical Examination, or have passed the Intermediate Dental Examination, and kept one year at the Dental Hospital to the satisfaction of their teachers.
- (b) Those who have entered the School not later than the commencement of their Junior Sophister Year must have passed Part I. of the Intermediate Medical Examination, or the Intermediate Dental Examination.
- (c) Those who have entered the School not later than the commencement of their Senior Sophister Year must have passed the Preliminary Scientific Examination,

or the Preliminary Scientific Dental Examination, and the Examination in Dental Anatomy.

Note.—These regulations may be relaxed in the case of candidates for Moderatorship.

8. Students who have satisfied the conditions laid down in Section 6 may obtain credit for the Degree Examination, either—

- (a) By passing in Ethics and English Composition at an ordinary Examination for the B.A. Degree, and passing Part II. of the Intermediate Medical Examination, or the Intermediate Dental Examination; or—
- (b) By obtaining a Moderatorship, or by passing the full ordinary Examination for the B.A. Degree.

9. A Student who has failed to obtain credit for attendance at the Arts Lectures given in Trinity Term, whether through sickness, or irregular attendance, or want of diligence, or by failing to pass the Examination in Astronomy mentioned in Section 2. note 3, or from any other cause, may supplement the Term as follows:—

- (a) If a Junior Freshman, he may pass the Junior Freshman Michaelmas Term Examination, or the Senior Freshman Hilary or Trinity Term Examination.
- (b) If a Senior Freshman, he may pass the Supplemental Trinity Senior Freshman Examination in October, or in the following January; and may pass the Final Freshman Examination for Medical Students in Hilary or Trinity following.
- (c) If a Junior Sophister, he may pass the Michaelmas Examination of his class, omitting the optional subject, or the Hilary or Trinity Examination of the Senior Sophister Year, taking one optional subject.
- (d) If a Senior Sophister, he must pass a Senior Sophister Supplemental Examination, taking one of the optional subjects.

A Student who fails to comply with these Rules loses his class.

Note.—A Junior Freshman who is prevented by sickness, or other sufficient reason, from attending Lectures in Trinity Term, may, by special permission of the Senior Lecturer, take a second course in his Senior Freshman Year instead.

10. If at any time a Student is reported by the Medical School Committee to the Senior Lecturer, as having ceased to pursue his studies with diligence, he shall thereupon lose the privileges accorded to Medical or Dental Students, until such time as the

Medical School Committee report that he has resumed diligent attendance.

If such unfavourable report be made at the end of the Summer Session, the Student will obtain no academic credit for the Arts Lectures he may have attended during the Trinity Term of that year.

11. Medical and Dental Students who do not claim professional privileges may keep their course in Arts by passing the usual Term Examinations and Degree Examination in full. Those who have kept part of their course in this way may, at any time, claim the privilege of completing it under the scheme detailed above.

II. *Medical Course*.—Students who produce evidence of having passed the Special Preliminary Examination, or its equivalent (see above), pay a Matriculation fee of 5s., and proceed with the following Courses and Examinations:—

FIRST YEAR—

First Winter^a—

Chemistry Lectures	..	..	£2	2	0
Physics and Mechanics Lectures	..	..	—	—	—
Practical Physics	..	..	—	—	—
Systematic Anatomy Lectures	..	..	3	3	0
Descriptive Anatomy Lectures	..	..	3	3	0
Dissections	..	..	5	5	0
			<hr/>		
			£13	13	0

First Summer—

Botany, Lectures and Practical	..	..	£1	11	6
Zoology, Lectures and Practical	..	..	2	2	0
Practical Chemistry ^b	..	..	3	3	0
Physics, Lectures and Practical ^b	..	..	—	—	—
			<hr/>		
			£6	16	6

PRELIMINARY SCIENTIFIC EXAMINATION.

The subjects are—(a) Chemistry and Physics, and (b) Zoology and Botany. All the subjects may be passed at the same time, or they may be passed in two groups, (a) and (b).

^a In the Table of Fees here given certain Reductions allowed to Matriculated Students have already been made.

^b Students who join the School in a Summer Session should consult the Professors of Chemistry and of Physics before entering for these Courses.

Before presenting themselves for this Examination, Students must have attended the recognised Courses of Instruction in the subjects of the Examination.

SECOND YEAR—

Second Winter—

Anatomy Lectures	..	..	£3	3	0
Physiology Lectures	..	..	3	3	0
Practical Physiology	..	..	2	2	0
Dissections	..	..	5	5	0
Hospital Elementary Instruction ^a	..		12	12	0
			<hr/>		
			£26	5	0

Second Summer—

Histology	£5	5	0
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INTERMEDIATE MEDICAL EXAMINATION.—PART I.

The subjects are—Anatomy, Histology and Physiology (omitting the Physiology of the Sense-Organs, and of the Central Nervous System). Both subjects must be passed at the same time.

Before presenting themselves for the Examination, Students must have attended the Courses of Instruction prescribed for the First and Second Years of Medical study, and *must have completed the Preliminary Scientific Examination.*

The Examination will consist of a paper, a practical, and an oral in each subject.

THIRD YEAR—

Third Winter^b—

Applied Anatomy Lectures	..	..	£3	3	0
Physiology Lectures	..	..	3	3	0
Surgery	..	..	2	2	0
Hospital Practice	..	..	12	12	0
			<hr/>		
			£21	0	0

^a Hospital attendance cannot be commenced until the student has obtained credit for six months' dissections. Students are advised not to attend Hospital until they have passed the Preliminary Scientific Examination.

^b Students who have credit for two years' dissections in Trinity College will be allowed to dissect in their third or subsequent year on payment of £3 3s. for the Winter Session.

INTERMEDIATE MEDICAL EXAMINATION.—PART II.

The subjects are—Applied Anatomy and Applied Physiology, including the Physiology of the Nervous System and of the Sense-Organs). Both subjects must be passed at the same time.

Before presenting themselves for the Examination, Students must have attended the prescribed Courses of Study, and *have completed Part I. of the Examination.*

The Examination will consist of a paper and an oral in each subject.

Third Summer—

Materia Medica and Therapeutics	..	£3	3	0
Operative Surgery ^a	..	2	12	6
		<hr/>		
		£5	15	6

N.B.—The Courses of the Fourth Year cannot be commenced until Part I. of the Intermediate Examination has been completed.

FOURTH YEAR—

Fourth Winter—

Practice of Medicine	..	..	£3	3	0
Midwifery	..	..	3	3	0
Pathology ^b	..	..	2	2	0
Hospital Practice	..	..	12	12	0
			<hr/>		
			£21	0	0

Fourth Summer—

Medical Jurisprudence and Hygiene..	£3	3	0
Practical Pathology	2	2	0
			<hr/>
			£5 5 0

FINAL MEDICAL EXAMINATION.—PART I.

The subjects are—Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene.

Before they are admitted to the Examination, Students must have attended the prescribed Courses of Study, passed the Intermediate Medical Examination, Part II., and paid the *Liceat* Fee (£5).

Vaccination (Fee, £1 1s.) should be taken out in the fourth year.

^aOperative Surgery may be taken by those Students only who have completed Part I. of the Intermediate Examination.

^bFreshman Students pay £3 3s.

FIFTH YEAR —

Practical Midwifery	..	..	£10	10	0
Mental Disease	..	..	3	3	0
Ophthalmic Surgery	..	..	3	3	0
			<hr/>		
			£16	16	0

FINAL MEDICAL EXAMINATION.—PART II.

The subjects are—(a) Medicine, Clinical Medicine, and Mental Disease; (b) Surgery, Clinical Surgery, Surgical Operations, and Ophthalmic Surgery; (c) Midwifery and Gynæcology (clinical, papers, and *vivâ voce*).

Candidates for the Final in Surgery will be required to produce a certificate of instruction and practice in the administration of General Anæsthetics.

Students may present themselves for Examination in any of these groups (a), (b) or (c), separately or together, at any of the Examinations during their Fifth Year; but they must leave at least one of these groups until the end of their Fifth Year. Before presenting themselves for any of these groups, Students must have attended all the prescribed Courses of Instruction in the subject in which they present themselves for Examination, and paid the *Liceat* Fee (£5). Candidates in any group who fail to satisfy the Clinical Examiners are not permitted to proceed with the other parts of the Examination in which they have failed.

TOTAL EXPENSES OF FOREGOING COURSES.

I. Lectures	..	..	£67	4	0
II. Hospitals	..	..	55	13	0
III. Degrees (M.B., B.Ch., B.A.O.)	..		27	0	0
			<hr/>		
TOTAL	..		£149	17	0

UNIVERSITY DIPLOMAS.

Candidates for the Diplomas in Medicine, Surgery, and Obstetric Science must be matriculated in Medicine, and must have completed two years in Arts, and five years in Medical Studies.

The dates, regulations, and subjects of Examination are the same as for the Degrees.

Diplomates on completing the Course in Arts, and proceeding to the Degree of B.A., may be admitted to the Degree of Bachelor on paying the Degree Fees.

The *Liceat* fees are the same as for the Finals.

Candidates who have completed the prescribed Courses of study and passed all the Examinations will be entitled, if Graduates in Arts, to have conferred on them the Degrees of M.B., B.Ch., B.A.O., on payment to the Senior Proctor of the Degree Fees amounting to £17. A corresponding regulation applies to the Diplomas, the Fees for which are £11. They will also obtain from the Senior Proctor a Diploma entitling them to be entered on the Register of Medical Practitioners under the Medical Act, 1886.

RE-EXAMINATION.

Every Student who, having entered for any of the Medical Examinations, fails, for any reason, to obtain credit for it, shall pay a fee of 10s. 6d. for any occasion on which he presents himself again for the same Examination.

CLASS EXAMINATIONS.

Students will be required to show a reasonable knowledge, as ascertained by Examination during the Session, of the subject of a Course of Lectures before a certificate of satisfactory attendance is issued by the Professor in charge, and the return to the Senior Lecturer is to include a statement that this condition has been fulfilled.

DATES OF EXAMINATIONS FOR 1910-1911.

Preliminary Scientific begins—October 10; March 20; June 26.

Intermediate Medical, Part I., begins—October 10; March 13; June 26.

Intermediate Medical, Part II., begins—October 17; March 20; June 26.

Final Medical, Part I., begins—October 24; March 20; June 26.

Final in Medicine, begins—November 7; February 20; June 12.

Final in Surgery begins—November 14; March 6; June 19.

Final in Midwifery begins—November 21; March 13; June 26.

Notice of intention to enter must be given to the Registrar of the School *not less than eight clear days before* each Examination begins. Printed forms of notice are provided. Certificates, when required, and *Liceat* or re-examination fees, when due, are to be presented or paid when Students enter their names for the Examination. If this be not done entries will not be received.

ATTENDANCE ON LECTURES.

Students are expected to attend all the Lectures or Demonstrations delivered in each Course for which they enter, whether in the Winter or the Summer Session ; but in order to provide for unavoidable absence, such as illness or attendance at Examinations, they are allowed credit for a Course if they have been present at three-fourths of the Lectures or Demonstrations actually delivered. If this proportion involve a fraction, the next highest whole number is reckoned as the minimum. If more than one-fourth have been missed, application must be made through the Committee of the School of Physic to the Board of Trinity College, by whom each case is decided on its merits, but the applicant must produce satisfactory reasons for omission of *all* the Lectures missed, not of the excess above one-fourth only. No Student will be allowed credit for a Course who has not been found diligent in attendance, when not prevented by illness or other cause considered sufficient by the Board.

HOSPITAL ATTENDANCE.

Three Courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other Metropolitan Hospital recognised by the Board of Trinity College are required.

During the first three months of the Winter Session in which Students begin their Hospital work, they must attend an Elementary Course of Hospital Instruction for one hour per day.

The certificate for this Course must be signed by all the teachers who have taken part in the Instruction, and the attendances of each day must be entered in a list, supplied by the Board of Trinity College, and initialled by the teachers for that day.

Students will be required to attend on at least forty-five occasions in this three months' course in order to obtain credit for it.

During other years also a certificate of attendance at Hospital is required by the Board of Trinity College.

Students who shall have diligently attended the practice of a recognised London or Edinburgh Hospital for one year, of a recognised County Infirmary, or of a recognised Colonial Hospital for two years previous to the commencement of their Metropolitan Medical Studies, may be allowed, on special application to the Board of Trinity College, to count the period so spent as equivalent to one year spent in a recognised Metropolitan Hospital.

PRACTICAL VACCINATION. ^a

One month's instruction in Practical Vaccination is required, to be attended at the Vaccine Department, Local Government Board for Ireland, 45 Upper Sackville Street; at No. 1 East Dispensary, 11 Emerald Street; or, until further notice, at the Grand Canal Street Dispensary.

MENTAL DISEASE.

A Certificate of attendance on a three months' Course of Practical Study of Mental Disease in a recognised Institution is required.

PRACTICAL MIDWIFERY.

A Certificate of attendance on a six months' Course of Practical Midwifery with Clinical Lectures, including not less than thirty cases, is required.

OPHTHALMIC SURGERY.

A Certificate of attendance on a three months' Course of Ophthalmic Surgery is required.

DIPLOMA IN PUBLIC HEALTH OR STATE MEDICINE.

The Diploma in Public Health is conferred, after examination, by the University of Dublin, upon Candidates fulfilling the following conditions:—

1. The Candidate must be a Registered Medical Practitioner.
2. A period of not less than twelve months shall elapse between the obtaining of a registrable qualification and admission to any part of the Examination.
3. ^b The Candidate must have completed, subsequent to obtaining a registrable qualification, a period of six months in a Laboratory, recognised by the Provost and Senior Fellows, in practical instruction in Chemistry and Bacteriology applied to Public Health, and also have attended, practically, Outdoor Sanitary Work for six months, under an approved Officer of Health, of which at

^a The Local Government Board for Ireland require that Medical Officers of Dispensary Districts must have attended a six weeks' course of instruction in vaccination with six attendances, four being in consecutive weeks, must have passed an examination, and must have shown practical knowledge in performing Vaccination. The Local Government Board recognise only the Certificates issued by the Medical Officers of the Vaccine Department, Upper Sackville Street, Dublin, the Workhouse Infirmary, Cork, and the Workhouse Infirmary, Belfast.

^b This condition does not apply to Practitioners registered or entitled to be registered on or before January 1, 1890.

least three months shall be distinct and separate from the period of Laboratory Instruction.

NOTE 1.—In the case of an Officer of the Royal Army Medical Corps, a certificate of outdoor sanitary work from a Staff Sanitary Officer may be accepted instead of one from a Medical Officer of Health.

4. The Candidate must, after obtaining a registrable Qualification, have attended during three months the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of Methods of Administration.^a

NOTE 1.—Methods of Administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards, and the Medical Superintendence of the Hospital generally.

NOTE 2.—In the case of an Officer of the Royal Army Medical Corps, a Certificate from a Principal Medical Officer under whom he has served, stating that he has, during a period of at least three months, been diligently engaged in acquiring a practical knowledge of Hospital Administration in relation to Infectious Diseases, may be accepted as evidence under *Rule 4*.

The Examination to be passed by the Candidate is prescribed as follows :—

PART I.

Chemistry—Paper and Practical.

Experimental Physics and Meteorology—Practical.

Bacteriology and Pathology—Paper and Practical.

Candidates are liable to be examined in the method of conducting *post-mortem* Examinations.

PART II.

Hygiene and Epidemiology—Paper.

Sanitary Engineering—Paper.

Public Health Acts and Vital Statistics—Paper.

Practical Sanitary Report.

The two Parts may be passed consecutively or with an interval between, at the option of the Candidate, provided that the requisite curriculum for each Part has been completed before the Candidate presents himself.

Examinations for Part I. will begin on December 5, 1910, March 20, 1911, and June 26, 1911; for Part II. on December 8, 1910, March 23, 1911, and June 29, 1911.

^a This condition does not apply to Practitioners registered, or entitled to be registered, on or before January 1, 1890.

Candidates are required to send in their names to the Registrar of the School of Physic at least a week before the first day of Examination.

Candidates who have registered since January 1, 1890, are required to apply to the Board of Trinity College for leave to present themselves a month before the Examination begins, and to submit at the same time Certificates of the required Courses of Study.

A fee of £10 10s. is required. £2 2s. must be paid to the Registrar of the School on entering for Part I.; the balance to be paid to the Senior Proctor on applying for the Diploma.

COURSE IN CHEMISTRY FOR D. P. H.

The complete analysis of water. Estimation of carbon dioxide, and detection of ammonia and other constituents or impurities in air. Complete analysis of milk and butter. Detection of adulterants in milk, flour, tea, coffee, mustard, and pepper. Detection of preservatives in foods. Detection of picric acid in beer and of alum in bread and flour. Microscopic examination of starches. Determination of acidity in vinegar. Identification and examination of disinfectants. Detection of various poisons in contents of stomach. General chemistry of ether, chloroform, nitric acid, chloral. Assay of caffeine.

Fee for the Course, £5 5s.

Candidates can join at any time during the Medical year by arrangement with the Professor of Chemistry.

PART II—D. P. H. EXAMINATION.

Vital Statistics and the Acts relating to Public Health in Ireland :—

Syllabus.

Vital Statistics.—Principles and methods of vital statistics ; birth and death rates ; their relation to age, sex, occupation and density of population ; population and housing statistics ; causes of increase and decrease of population ; estimates of population ; emigration ; practical construction of statistical tables ; graphic methods of illustration ; life tables.

Public Health Law.—Practical acquaintance with the provisions of the Statutes.

Books recommended.—“ Vital Statistics ” (Newsholme) ; Reports of the Registrars-General for the United Kingdom ; Census Reports (on Vital Statistics and Emigration Reports) ; “ Handbook of Irish Sanitary Law ” (Birmingham).

SANITARY ENGINEERING.

Synopsis.—Construction of healthy dwellings. Collection and disposal of house refuse. Sanitary inspections and testing of drains and sanitary fittings. Sources of water supply. Collection and storage of water. Sources of pollution. Filtration and softening of water. Heating and ventilation of public and private buildings. Sewage disposal of towns, villages, and isolated dwellings. Planning and arrangement of hospitals, slaughter-houses, cow-sheds, and dairies.

Books recommended to Candidates.—"Hygiene," by Notter and Firth; "The Purification of Sewage," by Dr. Barwise; "A Practical Guide for Sanitary Inspectors," by F. C. Stockman; "House-drainage and Sanitary Fitments," by G. J. G. Jensen.

A collection of Sanitary Appliances has been placed in the Engineering Museum, with which Candidates should make themselves familiar.

The attention of Students is directed to the importance of obtaining a Diploma in Public Health as soon as possible after they obtain their Medical Degrees. An increasing number of Public Bodies are requiring it as well as the usual Qualifications in Medicine, Surgery, and Midwifery.

II.

THE NATIONAL UNIVERSITY OF IRELAND.

THE MATRICULATION EXAMINATION.

This Examination will be held in Dublin, and at certain local Centres selected by the Senate.

In the year 1911 two Examinations for Matriculation will be held.

DATES FOR EXAMINATIONS IN 1911.

	Last day for receiving Forms of application, &c. on ordinary Fee		Examination begins.	
Matriculation (Summer) . . .	May	8	June	27
Matriculation (Autumn) . . .	August	22	September	26

The following are the groups of subjects for this Examination :—

- (1) Latin, or Greek.
- (2) Irish, French, German, Italian, Spanish, Dutch, or any other approved modern language.
- (3) English, or History and Geography (one subject).
- (4) Mathematics, or Physics.
- (5) One other subject not already selected above from the following list :—Irish, English, Latin, Greek, French, German, Spanish, Italian, and any other modern language approved by the Senate. History and Geography, Mathematics, Physics, Chemistry.

Each student must pass in *five* subjects.

Students entering for Degrees in Arts, Philosophy, and Celtic Studies must take one subject from each of the above groups.

Students entering for degrees in Medicine must, in order to satisfy the regulations of the General Medical Council, take—

Latin.

English.

Mathematics, and

A second Language (which may be Irish).

Their fifth subject (not already selected) must be chosen from Group 5.

DEGREES OF M.B., B.CH., AND B.A.O.

Printed Forms of application for admission to any Medical Examination may be had from "The Registrar, The National University of Ireland, Dublin," after Feb. 11 for the Spring Examination, and after July 15 for the Autumn Examination.

Each Candidate must send to the Registrar a printed Form of Application for admission, *accurately filled up and signed by the Candidate*, together with the prescribed fee.

1. Students who pass the First Medical Examination in 1910, or have passed that Examination in any year previously in the Royal University, may take Practical Chemistry, if the prescribed Course of Instruction has been pursued, at a special examination before or with the Second Examination in Medicine of the National University of Ireland, and on passing this special Examination shall be regarded as having passed the First Examination in Medicine of the National University.

2. Students who have completed two years of study, and who

pass the Second Examination in Medicine in 1910. may, on completion of the Courses required for the Third Examination of the late Royal University of Ireland, take either (a) an Examination equivalent to the Third Medical Examination of the late Royal University of Ireland, in Autumn, 1911, or (b) an Examination in Anatomy and Physiology in Spring, 1911. In the latter case they will subsequently conform to the new Regulations; in the former case they conform to the new Regulations, omitting *Materia Medica* at the new Third Examination.

3. Students who, in October, 1910, have completed three years of study, and have passed the Third Medical Examination in 1910. may conform either to the new Regulations (omitting *Materia Medica*), or may finish their studies under the Regulations prescribed by the Royal University.

4. Students who have completed four years of study in October, 1910. may finish their studies under the Regulations prescribed by the Royal University.

DATES FOR EXAMINATIONS IN 1911.

	Last day for receiving Forms of Application, &c. on ordinary Fee.		Examinations begin.	
<i>Examinations in Medicine—</i>				
First Examination in Medicine	February	27	March	28
Second Examination in Medicine	"	28	"	28
Third Examination in Medicine	"	28	"	28
M.B., B.Ch., B.A.O.	March	1	"	28
M.D.	"	1	"	29
M.Ch.	"	1	"	29
M.A.O.	"	1	"	29
First Examination in Medicine	May	17	June	19
Diploma in Public Health	"	17	"	19
First Examination in Medicine	August	24	September	26
Second Examination in Medicine	September	1	October	3
Third Examination in Medicine	"	1	"	3
M.B., B.Ch., B.A.O.	"	4	"	3
M.D.	"	4	"	4
M.Ch.	"	4	"	4
M.A.O.	"	4	"	4
Diploma in Mental Diseases	"	4	"	3

THE M.D. DEGREE.

Candidates may present themselves for the Examination for this Degree after an interval of three academical years from the time of obtaining the M.B., B.Ch., B.A.O. Degrees; but in the

case of Candidates who shall have obtained a degree of the University in the Faculty of Arts, an interval of two academical years shall be sufficient.

Printed Forms of application for admission to this Examination may be had from "The Registrar, The National University of Ireland, Dublin."

Each Candidate must send to the Registrar a Printed Form of application for admission, *accurately filled up and signed by the Candidate*, at least one month before the Examination, together with the prescribed fee of £2. (See "Dates for Examinations, in 1911," page 308). He must at the same time produce a Certificate of having been, for at least two academical years, engaged in Hospital or Private Medical, Surgical, or Obstetrical Practice respectively, or in the Military or Naval Medical Service.

Each Candidate who satisfies the Examiners must pay a further fee of £3 before being admitted to the Degree.

Candidates at this Examination must answer in the following subjects :—

I. Medicine.

II. Pathology.

The Examination in each subject consists of :—

(a) A Written Examination.

(b) *An Oral Examination.*

In addition every Candidate must diagnosticate at the bedside at least three Medical cases, and prescribe treatment. He must also write detailed reports on at least two cases to be selected by the Examiners, and discuss the questions arising thereon.

THE M.Ch. DEGREE.

Candidates may present themselves for the Examination for this Degree after an interval of three academical years from the time of obtaining the M.B., B.Ch., B.A.O. Degrees; but in the case of Candidates who shall have obtained a degree of the University in the Faculty of Arts, an interval of two academical years shall be sufficient.

Printed Forms of application for admission to this Examination may be had from "The Registrar, The National University of Ireland, Dublin."

Each Candidate must send to the Registrar a printed form of application for admission, *accurately filled up and signed by the Candidate*, together with the prescribed fee of £2. (See "Dates

for Examinations in 1911." page 308.) He must at the same time produce a Certificate of having been, for at least two academical years, engaged in Hospital or Private Medical, Surgical, or Obstetrical Practice, or in the Military or Naval Medical Service.

Each Candidate who satisfies the Examiners must pay a further fee of £3 before being admitted to the Degree.

Candidates at this Examination must answer in the following subjects :—

- I. Surgery, Theoretical and Practical, including Ophthalmology and Otology.
- II. Surgical Pathology.
- III. Surgical Anatomy and Operative Surgery, with the use of Surgical Instruments and Appliances.

As far as practicable, there will be a Written and an Oral Examination in these branches, and in addition every Candidate will be required to diagnosticate at the bedside at least three Surgical cases, and prescribe treatment. He must also write detailed reports on at least two cases, to be selected by the Examiners, and discuss the questions arising thereon.

THE M.A.O. DEGREE.

Candidates may present themselves for the Examination for this Degree after an interval of three academical years from the time of obtaining the M.B., B.Ch., B.A.O. Degrees; but in the case of Candidates who shall have obtained a degree of the University in the Faculty of Arts, an interval of two academical years shall be sufficient.

Printed forms of application for admission to this Examination may be had from "The Registrar, The National University of Ireland, Dublin."

Each Candidate must send to the Registrar a Printed Form of application for admission, *accurately filled up and signed by the Candidate*, at least one month before the Examination, together with the prescribed fee of £2. He must at the same time produce a Certificate of having been, for at least two academical years, engaged in Hospital or Private Medical, Surgical, or Obstetrical Practice, or in the Military or Naval Medical Service.

In the year 1911 the M.A.O. Degree Examination will be held on two occasions :—(i.) Early in May; (ii.) Early in October. (See Tables of Dates, &c., 1911, page 308.)

Each Candidate who satisfies the Examiners must pay a further fee of £3 before being admitted to the Degree.

Each Candidate must furnish satisfactory evidence that since graduating in Medicine he has (1) had personal charge of at least *twenty* cases of labour ; and (2) attended during a period of three months the practice of a Clinical Hospital for Diseases of Women, where at least six beds are in constant occupation, or in a special Ward of a General Hospital where such cases only are treated, and containing at least six beds in constant occupation.

Candidates at this Examination must answer in the following subjects :—

I. Midwifery.

II. Diseases of Women and Children.

III. Pathology.

IV. The use of Instruments and Appliances.

The Examination in each subject consists of—

- (a) An Oral Examination, with practical illustrations, including use of instruments and appliances.
- (b) A Written Examination.
- (c) A Clinical Examination, as far as practicable.

III.

THE QUEEN'S UNIVERSITY OF BELFAST.

DEGREES IN THE FACULTY OF MEDICINE.

STATUTES.

1. There shall be six degrees of the University in the Faculty of Medicine, viz. :—

Bachelor of Medicine (M.B.),
Bachelor of Surgery (B.Ch.),
Bachelor of Obstetrics (B.A.O.),
Doctor of Medicine (M.D.),
Master of Surgery (M.Ch.), and
Master of Obstetrics (M.A.O.).

2. The degrees of M.B., B.Ch., and B.A.O. shall be the primary degrees in the Faculty of Medicine, and shall be conferred at the same time and after the same course of study. No student shall be admitted to the final Examination for these degrees until he has shown (1) that he is a Matriculated Student of the University,

(2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a Student of Medicine by the General Council of Medical Education and Registration of the United Kingdom, and (3) that he has passed the several examinations prescribed.

3. The Senate shall not confer the primary degrees in the Faculty of Medicine upon any person who has not attended in the University during three academic years at least the courses of study prescribed for such degrees. The Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate.

4. Every candidate for the primary degrees in Medicine shall be required to show that he has attained the age of twenty-one years on or before the day of graduation.

5. The degrees of M.D., M.Ch., M.A.O. shall not be conferred, nor shall any of them, until the expiration of at least three academic years or in the case of graduates of the University in Arts or Science of at least two academic years after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study or been engaged in such practical work as may be prescribed. Any of these degrees may be conferred by the Senate either (a) after an examination or (b) on the submission of a thesis or other evidence of original study or research to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

THE DEGREES OF M.B., B.Ch., B.A.O.

REGULATIONS.

1. All candidates for the Degrees of M.B., B.Ch., and B.A.O. shall be required to have satisfied the Examiners in the several subjects of four examinations, namely:—

The First Medical Examination.

The Second Medical Examination.

The Third Medical Examination.

The Fourth Medical Examination.

Two Examinations will be held during the year, namely—in Spring and Summer.

Candidates will not be allowed to present themselves for more than one of the Medical Examinations at the same time.

2. The subjects of the First Medical Examination shall be :—

- (1) Chemistry (Inorganic and Organic) and Practical Chemistry.
- (2) Experimental Physics and Practical Physics.
- (3) Botany and Practical Botany.
- (4) Zoology and Practical Zoology.

(a) Candidates who have passed the Intermediate Examination in the Faculty of Science in the above-mentioned subjects will, on payment of the required additional fee, be regarded as having passed the First Medical Examination.

(b) Candidates who have passed an Examination in the Faculty of Arts in the above-mentioned subjects will be regarded as having passed in these subjects as for the First Medical Examination.

(c) The Examination will be divided into two parts—
Part I. Chemistry, Practical Chemistry and Experimental Physics (including Laboratory work).
Part II. Botany and Zoology (including Laboratory work).

(d) Examinations, including Parts I. and II., will be held in Spring and Summer. Candidates who have fulfilled the necessary requirements as to attendance, &c., may present themselves for Examination in Part I. or Part II., or in Parts I. and II., at either of these Examinations.

3. The subjects of the Second Medical Examination shall be :—

- (1) Anatomy and Practical Anatomy.
- (2) Physiology and Practical Physiology.

(a) Candidates who have previously passed the First Medical Examination may present themselves for this Examination at the close of their Second Year.

(b) Examinations will be held in Spring and Summer.

Candidates may present themselves for examination on either of these occasions, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination.

4. The subjects of the Third Medical Examination shall be:—

- (1) Pathology and Practical Pathology.
- (2) *Materia Medica*, Pharmacology, and Therapeutics.
- (3) Medical Jurisprudence.
- (4) Hygiene.

This Examination may be taken in two parts—

Part I. Pathology and *Materia Medica*.

Part II. Medical Jurisprudence and Hygiene.

- (a) Candidates who have previously passed the Second Medical Examination may present themselves for this Examination at the close of the Third Year.
- (b) Two Examinations will be held during the year—namely, in Spring and Summer. Candidates may present themselves for examination on either of these occasions, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination.
- (c) Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the First Medical Examination.

5. The subjects of the Fourth Medical Examination shall be:—

- (1) Medicine.
- (2) Surgery.
- (3) Midwifery.
- (4) Ophthalmology and Otology.

This Examination may be taken in two parts.

Part I. Systematic.

Part II. Clinical, Practical and Oral.

- (a) Candidates who have previously passed the Third Examination may present themselves for Part I. of the Fourth Examination at the close of the Fourth Year, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination.
- (b) Candidates who have passed Part I. of this Examination may present themselves for Part II. at the close of the Fifth Year, provided that they have fulfilled the necessary requirements as to Hospital attendance on

the various Clinical courses in the subjects of examination.

- (c) Parts I. and II. may be taken together at the close of the Fifth Year.
 - (d) Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination.
-

REGULATIONS AS TO CERTIFICATES OF ATTENDANCE IN THE VARIOUS COURSES FOR THE DEGREES OF M.B., B.CH., AND B.A.O.

1. Candidates, who desire to enter for any of the Medical Examinations, must furnish certificates of attendance on the various courses dealing with the subjects of the respective examinations.

- (a) Such certificates must testify that the candidate has attended the various courses regularly, and that he has satisfactorily carried out the class work in each subject.
- (b) In the case of Practical or Laboratory Classes, the candidates' laboratory notebooks may be required for inspection by the Examiners.
- (c) Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the First Medical Examination.
- (d) Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination.
- (e) The Certificate in Practical Anatomy must show that the whole body has been dissected in a satisfactory manner, at least once.
- (f) The Certificate in Practical Pharmacy must show that the holder has passed the Class Examinations in that subject.

- (g) The Certificate in Practical Pathology must show that the holder has attended regularly such courses of Morbid Anatomy Demonstrations, including Post Mortem Examinations, as may be required by the University.
- (h) The Certificate in Vaccination must be furnished by a Lecturer recognised by the Local Government Board.

2. Candidates for the Final Examination for the Degrees of M.B., B.Ch., and B.A.O. are required to furnish the following certificates, in addition to those granted for attendance on the necessary academic courses:—

- (1) Of having attended the medical and surgical practice of a hospital or hospitals, approved by the University, for at least 27 months. Such attendance shall be reckoned only from the beginning of the Third Year of Medical Study.
- (2) Of having acted as a Dresser for at least three months in the Surgical Wards, and as a clinical clerk for at least three months in the Medical Wards, of a Hospital recognised by the University. These attendances must not be concurrent.
- (3) Of having received practical instruction in the methods of administration of Anæsthetics.
- (4) In Practical Midwifery.

Every Student will be required either—

- (a) To have regularly attended the indoor practice of a Lying-in Hospital, or the lying-in wards of a General Hospital, for a period of three months; and after having received therein practical instruction in the conduct of Labour, under the personal supervision of a Medical Officer, to have conducted twenty cases of Labour under official medical supervision; or
- (b) To have conducted not less than twenty cases of Labour, subject to the following conditions:—

That he has during one month given regular daily attendance upon the indoor practice of a Lying-in Hospital or the lying-in wards of a General Hospital or Poor Law Infirmary having a Resident Medical Officer recognised for that purpose by the University; and that he has

therein conducted cases of Labour under the personal supervision of a Medical Officer of the Hospital, who shall, when satisfied of the student's competence, authorise him to conduct out-door cases under official medical supervision.

No certificate that the student has conducted the above-mentioned twenty cases of Labour shall be accepted unless it is given by a member of the Staff of a Lying-in Hospital or of the Maternity Charity of a General Hospital or of a Dispensary having an obstetric staff recognised for that purpose by the University or of a Poor Law Infirmary having a resident Medical Officer so recognised.

Every student before commencing the study of Practical Midwifery shall be required to have held the offices of Clinical Medical Clerk and Surgical Dresser, and to have attended a course of lectures on Surgery and Midwifery.

(5) In Gynæcology.

Every student shall present a certificate of having received Clinical Instruction in Diseases of Women, either in a Special Hospital for Diseases of Women recognised by the University or in a Special Ward for Diseases of Women in a General Hospital similarly recognised.

(6) In Diseases of Children.

Every student shall present a certificate of having received clinical instruction in Diseases of Children for a period of three months, either in a Children's Hospital or in a Children's Ward of a General Hospital recognised by the University.

(7) In Mental Diseases and Infectious Diseases.

Every student shall present a certificate of having attended approved courses of instruction.

(8) In Ophthalmology and Otology.

Every student shall present a certificate of attendance for a period of three months at an Hospital recognised by the University for clinical instruction in Diseases of the Eye and Ear.

(9) Every student shall present a certificate of attendance on a course of Vaccination held by a recognised teacher.

THE DEGREE OF DOCTOR OF MEDICINE.

REGULATIONS.

1. The Degree of Doctor of Medicine shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science, of at least two academic years after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed. This Degree may be conferred by the Senate either (a) after an examination, or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

2. The subjects of the examination under (a) shall be :—

The Principles and Practice of Medicine, and one other special subject to be selected by the candidate.

The special subjects shall be as follow :—

- i. Human Anatomy, including Embryology.
- ii. Physiology.
- iii. Pathology.
- iv. Pharmacology and Therapeutics.
- v. Sanitary Science and Public Health.
- vi. Forensic Medicine and Toxicology.
- vii. Mental Diseases.

The examination in Medicine shall include :—

- (a) A written paper.
- (b) A commentary upon a selected clinical case or cases.
- (c) A clinical and *vivâ voce* examination.

The examination in the Special Subjects shall include :—

- (a) A written paper.
- (b) A clinical or practical and *vivâ voce* examination.

THE DEGREE OF MASTER OF SURGERY.

REGULATIONS.

1. The Degree of Master in Surgery shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science, of at least two academic years after admission to the primary degrees in the

Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study or been engaged in such practical work as may be prescribed. This Degree may be conferred by the Senate either (a) after an examination, or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

2. The subjects of the examination under (a) shall be:—

- (1) Surgery, Theoretical and Practical, including Ophthalmology and Otology.
- (2) Surgical Pathology.
- (3) Surgical Anatomy and Operative Surgery, with the use of Surgical Instruments and Appliances.

There shall be both written and oral examinations in these branches, and a clinical examination upon selected surgical cases.

THE DEGREE OF MASTER OF OBSTETRICS.

REGULATIONS.

1. The Degree of Master of Obstetrics shall not be conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science, of at least two academic years after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study or been engaged in such practical work as may be prescribed. This Degree may be conferred by the Senate either (a) after an examination, or (b) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject thereof.

2. The subjects of the examination under (a) shall be:—

- (1) Midwifery.
- (2) Diseases of Women and Children.
- (3) Pathology in its special bearing on Midwifery and Diseases of Women and Children.

The examination shall consist of:—

- (1) A written examination.
- (2) A clinical examination.
- (3) An oral examination with practical illustrations, including those of instruments and appliances.

TRANSITORY REGULATIONS MADE FOR THE BENEFIT OF
MATRICULATED STUDENTS OF THE ROYAL UNIVERSITY
OF IRELAND PROCEEDING TO THE DEGREES OF M.B.,
B.CH., B.A.O. IN THE QUEEN'S UNIVERSITY OF BELFAST.

1. Students who have passed the First University Examination of the Royal University shall be regarded as having passed in Physics for the First Medical Examination.

2. Students who have passed the Second University Examination in Arts in Chemistry, Botany, and Zoology shall be regarded as having passed the First Medical Examination.

3. Students who have passed the First Medical Examination of the Royal University shall be regarded as having passed the First Medical Examination of this University on passing an examination in Practical Chemistry.

THE DIPLOMA IN PUBLIC HEALTH.

STATUTE.

The Senate may confer Diplomas in Public Health upon legally qualified medical practitioners who have pursued such courses of study and passed such examinations as may be prescribed: Provided always that the Regulations for such study and examinations are in accordance with the rules made from time to time by the General Council of Medical Education and Registration of the United Kingdom.

EXAMINATIONS.

One examination will be held yearly, and will consist of two parts as specified below. Candidates may present themselves for either part separately, or for both parts together at their option.

The First Part of the Examination will have reference to the general principles of Sanitary Science, and will comprise the following subjects:—Principles and methods of volumetric and gravimetric chemical analysis, and their application to the analysis of air, water, milk, butter, beverages (alcoholic), foods, &c., ventilation, warming, water supply and drainage. Conditions determining the healthiness of sites for dwellings. Sources, storage and purification of drinking water. Elements of meteorology and climatology. Building construction in relation more particularly to dwellings, hospitals, and schools. The disposal and purification of sewage, and the disposal of refuse.

The general principles of sanitary engineering. Disinfectants. Methods of bacteriological investigation and analysis. Pathology of infection, and of the diseases of animals transmissible to man.

The Second Part of the Examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise generally the following subjects:—Laws and Statutes relating to Public Health. Model By-Laws of the Local Government Board. Sanitation of dwellings, schools, factories and workshops; and of villages and towns. Inspection of slaughter-houses, cow-sheds, &c. Inspection of meat and other articles of food. General Epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographical distribution, and prevention of the epidemic, endemic, and other infective diseases both of temperate and of tropical climates. The methods applicable to the medical investigation of epidemics. Effects of overcrowding on health, also those of vitiated air, impure water, polluted soils, and of bad or insufficient food. Unwholesome trades and occupations and the resulting diseases. Nuisances injurious or dangerous to health. Relations of season and climate to health. The principles and methods of Vital Statistics in relation to Public Health.

All candidates will be examined in the provisions of the Statutes relating to Public Health in Ireland, but any candidate will be given an opportunity of showing a special knowledge of other Sanitary Laws in operation within the British Empire, provided that, when applying for admission to the examination, he gives notice of his desire and indicates the Special Law he proposes to offer.

The Certificates of Study required by the Regulations must be produced before admission to the examination.

The fee prescribed for each part of the examination is one guinea, and cannot be returned to any candidate who fails to present himself; but he will be entitled without an additional fee to be a candidate on one subsequent occasion. Every candidate who has passed both parts of the examination to the satisfaction of the Examiners, and who has paid the prescribed fee of five guineas, receives a Diploma testifying to his competent knowledge of what is required for the duties of a Medical Officer of Health.

A pamphlet giving all necessary information regarding entrance, examinations, lectures, fees, scholarships, prizes, &c., may be obtained on application to the Secretary of the University.

IV.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, IRELAND.

REGULATIONS FOR THE EXAMINATIONS IN MEDICINE,
SURGERY, AND MIDWIFERY REQUIRED FOR REGIS-
TRATION UNDER THE MEDICAL ACT, 1886.

*These Regulations are obligatory on all Candidates commencing their
Studies on or after October 1st, 1902.*

PRELIMINARY EXAMINATION AND REGISTRATION.

The General Medical Council requires that every Candidate shall produce evidence—

- (a) Of having, before entering on medical studies, passed a Preliminary Examination in general education recognised by the General Medical Council; and
- (b) Of having been registered by that Council as a Student in Medicine, according to Regulations, which may be obtained on application at the office of the General Medical Council, 299 Oxford Street, London, W., or its Branches—
Dublin, 35 Dawson Street; Edinburgh, 54 George Square.

Each Candidate before receiving his Diplomas must produce a Registrar's Certificate, or other satisfactory evidence, that he has attained the age of twenty-one years.

PROFESSIONAL EXAMINATIONS.

Every Candidate is required to pass four Professional Examinations.

Candidates will be admissible to the various Examinations as under :—

First Professional Examination, not earlier than the end of the first winter session.

Second Professional Examination, not earlier than the end of the second winter session.

Third Professional Examination, not earlier than the end of the third year of medical study.

Final Professional Examination, not earlier than the end of the fourth year of medical study; but it cannot be completed till the end of the fifth year of medical study.

No Candidate shall be admitted to any Examination within three months of his rejection in the subjects of that Examination by this or any other Licensing Body.

FIRST PROFESSIONAL EXAMINATION.

FEES.

The Fee for this Examination is £15 15s.

The subjects of the First Professional Examination are :—

Division A.—Chemistry and Physics.

Division B.—Biology.

The Examination in Chemistry includes a Practical Examination in the Laboratory.

Every Candidate is required to produce evidence—

(1) Of having passed a satisfactory Preliminary Examination in General Education ; and

(2) Of having diligently attended Courses of Instruction in—

Division A.— { (a) Theoretical Chemistry, six months.
(b) Practical Chemistry, three months.
(c) Physics, three months.

Division B.— (d) Biology, three months.

Candidates are recommended to present themselves in all the subjects of the First Professional Examination at one time, but they may present themselves either in Division A or in Division B provided that they have completed the curriculum as far as it concerns the “Division” in which they present themselves for Examination.

SECOND PROFESSIONAL EXAMINATION.

FEES.

The Fee for this Examination is £10 10s.

The subjects of the Second Professional Examination are :—

Division A.—Anatomy.

Division B.—Physiology and Histology.

Before admission to the Second Professional Examination every Candidate must have passed in the subjects of the First Professional Examination, and is required to produce evidence of having diligently attended :—

(a) The Practice of a Medico-Chirurgical Hospital for nine months.

(b) Anatomical Dissections : two courses of six months each ; or one course of six months and two courses of three months.

Lectures in :—

- (c) Anatomy, six months.
- (d) Physiology, six months.
- (e) Practical Physiology and Histology, three months.

THIRD PROFESSIONAL EXAMINATION.

FEEs.

The Fee for this Examination is £9 9s.

The subjects of the Third Professional Examination are :—

Division A.—Pathology.

Division B.—Materia Medica, Pharmacy, and Therapeutics.

Division C.—Forensic Medicine and Public Health.

Before admission to the Third Professional Examination, every Candidate must have passed in the subjects of the Second Professional Examination, and is required to produce evidence of having diligently attended courses of instruction in :—

(a) The Practice of a Medico-Chirurgical Hospital, nine months.

(b) Pathology.

(1) A Systematic Course of three months.

(2) A Laboratory Course of practical instruction in a recognised Medical School, three months.

These Courses may be taken concurrently.

(c) Materia Medica, Pharmacy, and Therapeutics, three months.

(d) Public Health and Forensic Medicine, three months.

Candidates may present themselves in any one or more "Divisions," but Certificates of study in all three Divisions must be produced before Candidates will be permitted to present themselves for examination in any one Division.

FINAL PROFESSIONAL EXAMINATION.

FEEs.

The Fee for this Examination is £6 6s.

The subjects of the Final Professional Examination are :—

Division A.—Medicine, including Fevers, Mental Diseases, and Diseases of Children.

Division B.—Surgery, including Operative Surgery and Ophthalmic Surgery.

Division C.—Midwifery and Gynaecology, Vaccination, and Diseases of New-born Children.

Before admission to the Final Professional Examination, every Candidate must have passed in the subjects of the Third Professional Examination, and is required to produce evidence of having diligently attended :—

Division A.—The Practice of a Medico-Chirurgical Hospital for nine months (unless such evidence has been previously produced for admission in Division B).

The Practice of a recognised Fever Hospital, or the Fever Wards of a recognised Clinical Hospital, three months.

Clinical Instruction in Mental Diseases, one month (12 attendances).

Lectures on Medicine, six months at a recognised Medical School.

Of having diligently performed the duties of Medical Clinical Clerk in a recognised Hospital for three months.

Division B.—The Practice of a Medico-Chirurgical Hospital, nine months (unless such evidence has been previously produced for admission in Division A).

Clinical Instruction in Ophthalmic and Aural Surgery, three months.

Lectures on Surgery, six months at a recognised Medical School.

Instruction in Operative Surgery, three months at a recognised Medical School.

Of having diligently performed the duties of Surgical Dresser in a recognised Hospital for three months.

Division C.—Midwifery Hospital, or Maternity, including evidence of having been present at twenty labours, six months.

Instruction in Vaccination; six attendances to be certified by a Public Vaccinator.^a

^a By a Regulation of the English Privy Council no one can be appointed a Public Vaccinator in England who does not produce a certificate of proficiency in vaccination from a person authorised by the English Privy Council to grant same.

Lectures on Midwifery (including Diseases Peculiar to Women and to New-born Children), six months at a recognised Medical School.

Candidates are recommended to present themselves in all the subjects of the Final Examination at one time ; but a Candidate at or after the end of the fourth year may present himself in any one of the Divisions A, B, or C, provided he has completed his Curriculum as far as concerns the Division in which he presents himself. The Examination in at least one of the Divisions must be deferred till the end of the fifth year.

Before completing the Final Examination a Candidate must have passed four years in Medical Studies other than those for the First Professional Examination.

Candidates must have passed in all the subjects of the Final Examination before any Diploma can be granted.

Each Candidate before receiving his Diplomas must produce a Registrar's Certificate, or other satisfactory evidence, that he has attained the age of twenty-one years.

EXEMPTIONS.

Candidates who have passed in any of the required subjects at Examinations conducted by any Licensing Body recognised by the Royal College of Physicians and the Royal College of Surgeons may, at the discretion of the Committee of Management, be exempted from further examination in such subjects under these regulations.

CERTIFICATE OF STUDY.

All Lecture Certificates shall be signed by the Lecturer or Clinical Teacher. In case of absence or illness of the Lecturer or Teacher the Registrar or other duly accredited official shall sign for such absent Lecturer or Teacher, stating the reason for his so doing.

Winter Courses shall consist of not less than 50 Lectures, and Summer Courses of not less than 30 Lectures.

No Lecture Certificate shall be received unless the number of attendances certified thereon shall be at least *two-thirds* of these numbers.

As regards Medical and Surgical Hospital Certificates, the number of daily attendances certified shall not be less than 80 for the Winter Session, and 40 for the Summer Session.

DATES OF EXAMINATIONS.

(For the Conjoint Diploma of the Royal Colleges of Physicians and Surgeons of Ireland.)

Preliminary	-	March, June, and October.
First Professional	-	January, April, June, and October.
Second „	-	January, April, July, and October.
Third „	-	January, April, July, and October.
Final Examination	-	January, April, July, and October.

REGULATIONS FOR CANDIDATES FOR THE DIPLOMA
IN PUBLIC HEALTH.

The following Regulations are compulsory on all Candidates presenting themselves for Examination after January 1st, 1903, except as undernoted.

Stated Examinations for the Diploma in Public Health commence on the first Monday of the months of February, May, July, and November.

A special Examination for the Diploma may, at the discretion of the Committee of Management, be obtained—except during the months of August and September—on application at least one fortnight before the date of the proposed Examination, and payment of £15 15s. in addition to the ordinary Fees mentioned below.

Every Candidate for the Diploma in Public Health must be a Registered Medical Practitioner. He must return his name to the Secretary of the Committee of Management under the Conjoint Scheme, Royal College of Physicians, Dublin, one fortnight before the Examination, and lodge with him a Testimonial of Character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh, together with certificates of the prescribed course of study.

Candidates registered as Medical Practitioners or entitled to be so registered after January 1st, 1890, must comply with certain Resolutions and Rules, adopted by the General Medical Council on December 2nd, 1902, May 29th and November 30th, 1903, May 31st, 1904, and May 25th and 26th, 1905, in regard to Diplomas in Public Health.

. Certain of the *Rules* as to study shall not apply to Medical Practitioners registered, or entitled to be registered, on or before January 1st, 1890.

The Fee for the Examination is Ten Guineas, which must be

lodged in the Ulster Bank, Dublin, to the credit of the Committee of Management. Fees are not returned to any Candidate who withdraws from, or is rejected at, any Examination. The Fee for re-examination is Five Guineas.

The Examination for the Diploma in Public Health comprises the following subjects:—Chemistry and Physics, Engineering and Architecture, Meteorology, Sanitary Law, Vital Statistics, Hygiene, Bacteriology.

V.

APOTHECARIES' HALL IN IRELAND.

The First, Second, and Third Professional Examinations are held four times a year—viz., commencing the first Monday in January, April, July, and October.

The Final Examinations are held quarterly.

The Fees payable for each Examination are as follow:—

First Professional	-	-	£5	5	0
Second	..	-	5	5	0
Third	..	-	5	5	0
Final Examination	-	-	6	6	0

A Candidate is allowed for each Professional Examination which he has completed at any other Licensing Body, except the Final.

Ladies who comply with the regulations will be admitted to these examinations.

Candidates may be admitted to a Special Examination, under special circumstances, which must be laid before the Examination Committee. If the Candidate's application be granted, an extra fee of Ten Guineas over and above the full fee is required.

Candidates already on the Register will receive the Diploma of the Hall, on passing an Examination in the subjects which are not covered by their previous qualifications, and on paying a fee of Ten Guineas. If Medicine or Surgery is required, additional fees will be charged.

COURSE OF STUDY FOR THE DIPLOMA.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall in Ireland must, before proceeding to the Final Examination, produce evidence of having been registered as

a Medical Student for 57 months; also of having attended Courses of Instruction as follows:—

Winter Courses of Six Months.

One Course each of the following:—

Anatomy (Lectures).

Chemistry—Theoretical.

Midwifery.

Practice of Medicine.

Physiology, or Institutes of Medicine.

Surgery.

Dissections, two courses of six months each.

Courses of Three Months.

One Course of each of the following:—

Materia Medica.

Medical Jurisprudence.

Chemistry—Practical.

Practical Physiology and Histology.

Operative Surgery.

Physics.

Clinical Ophthalmology.

Biology.

Clinical Instruction in Mental Disease.

Pathology.

Vaccination.

Medico-Chirurgical Hospital, twenty-seven months, to be distributed at the Student's own discretion over the last four years of his study. The Candidate may substitute for nine months of this Hospital Attendance six months as a Resident Pupil. He will be required to present a certificate of having taken notes of at least six Medical and six Surgical cases recorded under the supervision respectively of a Physician and of a Surgeon of his Hospital.

Three months' study of Fever—which may be included in his twenty-seven months' Hospital Attendance—in a Hospital containing Fever Wards, and having taken notes of at least five cases of Fever.

Six months' Practical Midwifery and Diseases of Women during the Winter or Summer of the third or the fourth year, at a recognised Lying-in Hospital or Maternity.

Three months' Practical Pharmacy, in a recognised Clinical Hospital or a recognised School of Pharmacy, or a year in

the Compounding Department of a Licentiate Apothecary or a Pharmaceutical Chemist.

Each Candidate, before receiving his Diploma, must produce evidence that he has attained the age of twenty-one years.

Licentiates of this Hall are entitled to enter as Candidates for the Fellowship of the Edinburgh Royal College of Surgeons.

EXAMINATIONS FOR THE DIPLOMA.

All information relative to the Examinations may be obtained from the Registrar of the Apothecaries' Hall, 40 Mary Street, Dublin.

VI.

DENTAL EDUCATION AND EXAMINATIONS IN IRELAND.

UNIVERSITY OF DUBLIN.

DEGREES IN DENTAL SCIENCE.

Combined Arts and Dental Curriculum.

The University of Dublin grants the degrees of Bachelor and Master in Dental Science.

Either of these qualifications entitles the holder to be registered as a licensed Dental Practitioner.

In order to obtain the Degree of Bachelor (B. Dent. Sc.). Candidates must have completed the course for the Arts Degree (B.A.) of the University and have spent at least four years in the School of Dentistry. The Degree of Master in Dental Science (M. Dent. Sc.) is awarded after a further examination, and cannot be taken until the end of a fifth year of study.

The Dental and Arts Courses may be taken separately or concurrently.

It is to be understood (*a*) that the Arts Courses to be attended by Dental Students are the same as those to be attended by Medical Students; and (*b*) that, with the exceptions noted, the Professional Courses mentioned below as necessary for Dental Students are the same as those for Medical Students.

The following curriculum has been drawn up for Students who desire to pursue their Arts and Dental studies concurrently:—

The Student should—

- (1) Pass the Entrance Examination (Trinity College) in June, October, or January.

- (2) Pass any Junior Freshman Term Examination, or the Special Preliminary Examination in Arts held in March.

Upon the completion of the second of these Examinations the Student should register as a Dental Student^a at the office of the Registrar of the School of Medicine, and begin his combined Course for the Arts and Dental Degrees and the Dental Diploma in October or April.

NOTE.—The fees for the Courses marked thus * are included in the Arts fees.

First Winter—

* Mechanics (Statics and Dynamics).

* Physics Lectures (Michaelmas and Hilary Terms).

* Physics, Practical.

Chemistry Lectures.	£2	2	0
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Systematic Anatomy Lectures ^b	3	3	0
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Anatomy, dissections	5	5	0
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			£10	10	0
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First Summer—

Practical Chemistry, together with

Practical Dental Metallurgy	£3	3	0
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Histology, together with Dental

Histology	5	5	0
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Dental Anatomy and Physiology

(Human and Comparative) ^c	2	2	0
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			£10	10	0
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* Mechanics (Statics and Dynamics).

* English Composition.

In June of his first year the Student should pass the Preliminary Scientific Dental Examination in Chemistry and in Physics as dealt with in the Winter Session, and in Dental Anatomy. Before he is admitted to any of these Examinations he must have attended the Courses indicated above to the satisfaction of his Teachers.

^a Students are advised to register *both* as Dental and Medical Students. A Student who has done this is entitled to count some of the Courses which he takes as a Dental Student as a part of his Medical Course, should he at a later date determine to take the Medical Degrees.

^b Together with an elementary course at the beginning of the Winter Session.

^c Special Course; two hours per week, together with practical work and demonstrations.

Second Winter—

General Hospital	£12 12 0
Dissections	5 5 0
Physiology, Lectures	3 3 0
Physiology, Practical	2 2 0
Surgery, including the elements of Surgical Pathology and Surgery in its applications to Dental Surgery Lectures ^a	2 2 0
Medicine, including the elements of General Pathology and the appli- cations of Medicine to Dental Surgery Lectures ^b	3 3 0
	<hr/>
	£28 7 0

Students who begin their Dental Course in the Summer Session are advised in their first summer to attend Dental Anatomy, Statics and Dynamics, and English Composition.

At the completion of his second Winter Session the Student should pass the Intermediate Dental Examination in Anatomy and Physiology.

Before he is admitted to the Intermediate Dental Examination the Student must have completed the Courses of instruction indicated above, to the satisfaction of his Teachers, and must have passed the Preliminary Scientific Dental Examination in Chemistry and Physics, and in Dental Anatomy.

Second Summer—

General Hospital (included in Winter Fee).

Dental Mechanics (Practical).^{c,d}

* Logic Lectures and English Composition.

During the Summer, Students should prepare for the Little-Go Examination, and should pass it in the following October. The

^a Lectures of Professor of Surgery from October to Christmas, those of Special Lecturer for rest of Winter Session.

^b Course given by Special Lecturer.

^c Students who have failed to complete the Intermediate Dental Examination are advised not to begin their instructions in Dental Mechanics until June or October. Before presenting himself for the Final Examination, the Student must have taken a minimum of 27 months' instruction in Primary Dental Mechanics.

^d If this instruction is taken with a Dental Practitioner, the fee charged is a matter of arrangement.

subjects for the Examination are:—Mechanics, Logics, English Composition, and one language, viz. : Latin, Greek, French, or German.

Having completed the Little-Go and Intermediate Dental Examinations the Student should devote his time to work at the Dental Hospital. For two years he should attend each forenoon the surgical practice of this Hospital, and in the afternoons the instruction given in Mechanical Dentistry.

Third Winter—

Dental Surgery (Hospital Practice) ..	£9	9	0
Dental Mechanics (Practical) ..	52	10	0
Dental Mechanics, including Dental Metallurgy—Lectures, October to Christmas	2	2	0
	<hr/>		
	£64	1	0

Third Summer—

Dental Surgery (Hospital Practice))	(included in Winter
Dental Mechanics (Practical) }	fee)
*Astronomy—Lectures.	

Fourth Winter—

Dental Surgery (Hospital Practice) ..	£9	9	0
Dental Mechanics (Practical) ^a ..	52	10	0
Dental Surgery and Pathology, including Materia Medica and Therapeutics in their applications to Dental Surgery Lectures ^b ..	3	3	0
	<hr/>		
	£65	2	0

Fourth Summer—

Dental Surgery (Hospital Practice)	}	(included in Winter		
Dental Mechanics (Practical)		fee)		
Orthodontia .. .. .	..	£1	1	0
Anæsthetics—Demonstrations in the use of ^b .. .. .	..	1	1	0
Ethics Lectures				
		<hr/>		
		£2	2	0

^a If this instruction is taken with a Dental Practitioner, the fee charged is a matter of arrangement.

^b Courses given by Special Lecturers.

At the completion of the fourth year the Student should enter for the Final Dental Examination, the subjects for which are—

Dental Mechanics and Metallurgy.

Paper, Practical and *Vivâ voce*.

Dental Surgery and Pathology, including Materia Medica and Therapeutics in their application to Dental Surgery.

Paper, Practical and *Vivâ voce*.

Orthodontia. *Vivâ voce*.

The Principles of Surgery and Medicine in their application to Dental Surgery. *Vivâ voce*.

The Degree of Bachelor in Dental Science is conferred on Students who have completed the above Courses and Examinations, and passed the B.A. Degree Examination in Ethics and English Composition.

The total fees in order to obtain the degree of Bachelor in Dental Science are :—

Entrance fee and Arts fees (4 years)	£84	10	0
Lecture, Laboratory, and Hospital fees—			
First Winter	10	10	0
First Summer	10	10	0
Second Winter	28	7	0
Second Summer	—		
Third Winter	64	1	0
Third Summer	—		
Fourth Winter	65	2	0
Fourth Summer	2	2	0
Examination fee	5	0	0
Fee for Degree	10	0	0
	£280	2	0

MASTER IN DENTAL SCIENCE.

Candidates for the Degree of Master in Dental Science must be Bachelors in Dental Science of at least one year's standing. They will be required to pass an examination in Pathology and Bacteriology, and either to carry out Dental work of an advanced character to the satisfaction of the Examiners, or to present a thesis to be approved of by them, giving evidence of original research on some subject connected with Dentistry.

DATES OF DENTAL EXAMINATIONS FOR 1910-11.

Preliminary Scientific begins : October 10, March 20, June 26.

Intermediate begins : October 17, March 13, June 19.

B. and M. Dent. Sc. begin : November 14, March 6, June 19.

Notice of intention to enter must be given to the Registrar of the School *not less than eight clear days before* each Examination begins. Printed forms of notice are provided. Certificates, when required, and examination or re-examination fees, when due, are to be presented or paid when Students enter their names for the Examination. If this be not done, entries will not be received.

Graduates in Medicine of the University of Dublin who desire to take a Degree in Dentistry are admitted to the B. Dent. Sc. Examination on producing certificates as follows :—

- (1) One year's attendance at the Surgical practice of a recognised Dental Hospital.
- (2) Two years' practical Dental Mechanics.
- (3) Lectures on Dental Surgery and Pathology, Mechanics, Anatomy, Orthodontia, and Anæsthetics.

COURSE IN CHEMISTRY FOR DENTAL STUDENTS.

Winter Session (November to March)—

Lectures—Tuesdays and Thursdays at 1 o'clock, and Saturdays at 11 o'clock.

Demonstrations and Laboratory work as may be arranged.

Subject—Inorganic and Elementary Organic Chemistry.

Fee—College Students, £2 2s. ; Externs, £3 3s.

Summer Session (April to June)—

1st Part. Demonstrations and Laboratory Work—

Mondays, Wednesdays, and Fridays, 9 to 11 o'clock.

Subject—Qualitative analysis of single inorganic salts.

2nd Part. Laboratory work on composition of bone and teeth ; anæsthetics and antiseptics ; dental metallurgy.

Fee—£3 3s.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

DIPLOMA IN DENTAL SURGERY.

The Royal College of Surgeons in Ireland grants Diplomas in Dental Surgery under revised conditions adopted by the Council on November 25, 1909, of which the following is a synopsis :—

The Candidate must be twenty-one years of age before being granted the Diploma.

The Candidate must have passed three Examinations.

1. Preliminary (identical with the Medical Preliminary).
2. Primary Dental. Fee, £10 10s. (This Examination is much the same as the Second Conjoint Professional.)
3. Final Dental Examination. Fee, £10 10s. Candidates are examined in General Pathology, Medicine and Surgery; Dental Surgery, and Dental Pathology, with the Materia Medica and Therapeutics applicable to Dental Surgery; Dental Mechanics and Metallurgy; Orthodontia.

Candidates are required to do gold fillings, and construct mechanical work in the presence of the Examiners.

The Certificates required may be divided into General and Special.

1. The General Certificates required are about the same as those required by the Medical Student for the Second Conjoint Professional Examination.

The Special Certificates may be subdivided into—

1. Dental Hospital. 2. Practical Mechanical Dentistry.
 1. Dental Hospital. Two years' attendance, with Lectures in Dental Surgery and Pathology and in Dental Mechanics. Fee, £28 7s.
 2. Practical Mechanical Dentistry. Two years instruction from a Registered Dentist, or under the direction of the Superintendent of the Mechanical Department of a recognised Dental Hospital where the arrangements for teaching Mechanical Dentistry are satisfactory to the Council of the College. This instruction may be commenced or attended before the Candidate registers as a Medical or Dental Student. The fee for this is variable, but may be set down at from £50 to £150.

Large reductions in the Special Certificates required are made in the cases of qualified Medical Practitioners.*

As regards Dental Hospital practice, full information is contained in the Calendar for 1910-11 of the School of Dentistry in connection with the Incorporated Dental Hospital of Ireland, Lincoln Place, Dublin. The Calendar may be obtained on application to the Dean.

* Fuller particulars can be obtained by application to the Registrar, Royal College of Surgeons, St. Stephen's Green, Dublin.

THE DUBLIN JOURNAL

OF

MEDICAL SCIENCE.

NOVEMBER 1. 1910.

PART I.

ORIGINAL COMMUNICATIONS.

ART. XIV.—*Case of Syphilitic Reinfection occurring within three years and three months after the previous infection, which was followed by the development of complete Syphilis.* Reported by HENRY FITZGIBBON, M.D., F.R.C.S.I.: Senior Surgeon to the Westmoreland Lock Hospital, Dublin. (Illus.)

THE patient, Mr. J. H., aged twenty, was brought to me on August 21, 1906, by his uncle, a Surgeon-Colonel in the R. A. M. C., who was himself going on foreign service, and placed the case in my charge. No previous treatment had been adopted prior to my seeing the patient.

He was then suffering from a well-marked indurated chancre at the meatus of the urethra, with typical induration and shotting of the inguinal lymphatics in both groins. The sub-mastoid and nuchal glands were also distinctly shotted, there were mucous patches on the tongue, and specific snail-track ulceration of the throat. A general sub-cuticular macular syphilide was visible all over the body, arms and thighs. Exposure to probable infection about eight weeks previously was frankly admitted.

As there was no room for any doubt that the case was one of complete syphilis, I put the patient under specific treatment at once, by intra-muscular injection of mercurial cream, prepared for

me by Messrs. Price & Co., of 26 Clare Street, Dublin, according to the formula given by Colonel F. J. Lambkin, at page 26 in his book on the treatment of syphilis, published in 1905.

The first injection of 5 minims of the cream was made into the right gluteal region on August 21, 1906. This injection was repeated, alternating from the right to the left buttock, as follows:—August 28, September 4, September 11, September 19, September 26, October 3, October 10, October 17, October 24, October 31, November 7, when an injection of 10 minims was made, this being the final injection of the first series of twelve injections. During the whole period from August 21 up to November 7 there was uninterrupted improvement. The local induration and the ulceration on the tongue had commenced to subside immediately after the first injection. On October 10 no sign of active syphilis remained, except some unresolved induration at the site of the original chancre, and a patch of bare epithelium on the centre of the tongue. The skin eruption and the multiple adenitis had retrograded completely. On November 20, after an interval of about fourteen days without any treatment, the patient was in excellent general health, and free from any objective symptom of syphilis whatever. He was now put on a course of iodide of potassium, 5 grs. twice daily, which he continued until January 15, 1907.

On February 4, 1907, he was in excellent general health, free from any symptom of syphilis, and his full normal weight—147 lbs. I, however, commenced a second series of intra-muscular injections at fourteen days intervals as a precautionary measure. Injections of 5 minims of mercurial cream were injected in the same manner as before, except that the interval between the injections was now extended from seven days to fourteen days. On March 11 a few spots of scrotal psoriasis appeared, but they disappeared again in a few days, with the local application of a little calomel ointment daily. The fortnightly mercurial injections were continued without interruption until September 4, 1907, when all treatment was finally stopped, the patient being kept merely under observation until about January 1, 1908, practically eighteen months from the first manifestation of syphilis in July, 1906.

I now considered him permanently cured, and lost sight of him, and did not see him again until November 13, 1909. On this day he called to consult me again, stating that he had been

perfectly well since I had last seen him in January, 1908, until recently, but that he believed the syphilis was "now again breaking out" He showed me a typical superficial syphilitic ulcer of the pharynx and mucous patches on his tongue. I found the submastoid and nuchal glands shotted, and on further examination I discovered a small Hunterian chancre at the frænum, and shotting of the inguinal glands on both sides. On my questioning him he admitted that he had exposed himself to probable infection about eight weeks previously. This left no doubt in my mind that the case was one of reinfection, and that the present syphilitic phenomena were not due to the former infection in July, 1906, but to a recent one in September, 1909. I found that the patient was imbued with the popular idea, that once having contracted syphilis he enjoyed immunity from a second infection, and that reinfection was impossible in his case. I therefore kept him under observation, without any treatment, until December 9, when, as the primary sore had increased and the infection of the lymphatics in the groins had become more marked, and the specific character of the sore throat and mucous patches on the tongue unmistakable, there was no room for doubt that it was a genuine instance of reinfection. Before putting him under specific treatment, I asked him to allow Sir John William Moore, M.D., to examine him, which he did, and Sir John informs me that he satisfied himself that the case was one of recently contracted syphilis. Of course, he had no knowledge of the previous attack in 1906.

On December 9, 1909, I commenced treatment by an intramuscular injection of mercurial cream, similar to that used before. Five minims were injected into the right gluteal muscle, this injection was repeated every seventh day, alternating from one buttock to the other, until February 1, 1910, when the patient discontinued to attend without giving me notice of his intention to do so, and I have not seen him since.

The syphilitic symptoms had yielded with exceptional rapidity, the chancre and multiple adenitis had resolved, and the ulceration of the throat and tongue altogether disappeared before the fifth injection, so that the patient had been apparently quite well for three weeks at the time that he ceased to attend for treatment.

There can be no doubt that this patient received syphilitic infection in June or July, 1906, which was

followed by the development of complete syphilis early in August that year, and that he recovered under treatment by intra-muscular injection of mercurial cream within twelve months. There was an interval of perfect health from any symptoms of syphilis from April, 1907, until October, 1909, during which no treatment was undergone. About this time he exposed himself to the risk of infection, which was followed by a characteristic chancre, and the subsequent sequelæ usual in recently-acquired syphilis, such as inguinal adenitis, sore throat, &c., which left no doubt of the case being one of reinfection of syphilis which must have taken place in the end of October, 1909, about the time that the patient admitted the exposure to have taken place.

The dates of the respective infections were proximately July, 1906, and October, 1909, leaving only an interval of three years and three months between the first infection and the date of the reinfection. The possibility of a second syphilitic infection taking place in a person who has previously contracted syphilis and recovered from it has long since been proved beyond question by the number of cases which have been recorded upon reliable authority, but, so far as I am aware, the interval between the first and second infections has always exceeded five years. I regard the above case, therefore, as quite exceptional in view of the shortness of the interval which intervened between the first attack of complete syphilis and the second infection.

The occurrence of reinfection is the most conclusive evidence one can get of the perfect recovery of the patient from the previous constitutional taint. The practical value of recording every instance which comes under observation is, that by doing so, attention is called to the method of treatment under which the constitutional cachexia following the first infection became so completely cured as to render the patient susceptible of a reinfection, just as a person becomes susceptible of

re-vaccination after the protective influence of a primary vaccination has died out.

Although I have treated a large number of cases of complete syphilis since 1905 by the same method with apparently uninterrupted success, this is the first opportunity I have had of treating a case of reinfection after a cure had been accomplished by intra-muscular injection. I use the mercurial cream prepared by Messrs. Price & Co., according to Colonel Lambkin's formula, and dispensed in hermetically-sealed tubes of 40 minims each "jectols."

I use an all glass reservoir syringe, which holds the contents of one "jectol."

Five minims of the cream is the equivalent of $\frac{1}{2}$ gr. of mercury. The dose is varied according to the circumstances of the case, but in no instance do I ever inject more than 10 minims of the cream at one time, as a greater quantity is not rapidly absorbed, and may cause a painful inflammatory nodule at the point of injection. This is altogether avoided by limiting the amount of the dose and by a thorough local massage of the part immediately after the injection has been made.

I have modified and improved the all-glass reservoir syringe which I formerly used, so that those now supplied to me by Messrs. Price & Co., together with the mercurial cream in their "jectols," afford the most convenient appliance for treatment by intra-muscular injection that has yet been introduced to the Profession.

I give an illustration of the syringe which I now use, the needle plug of which is perforated for the needle to fit into it, instead of having a nozzle for the needle to fit on as formerly. This nozzle was liable to get broken off, and this objection is now obviated.

I use needles of different lengths when making injections into different muscles, a needle $1\frac{3}{4}$ inches for gluteal muscle, and one only $1\frac{1}{4}$ inch for the deltoid muscle or in spare patients.

ALL GLASS RESERVOIR SYRINGE FOR INTRA-MUSCULAR INJECTIONS.
(Patent No. 26,023/97).

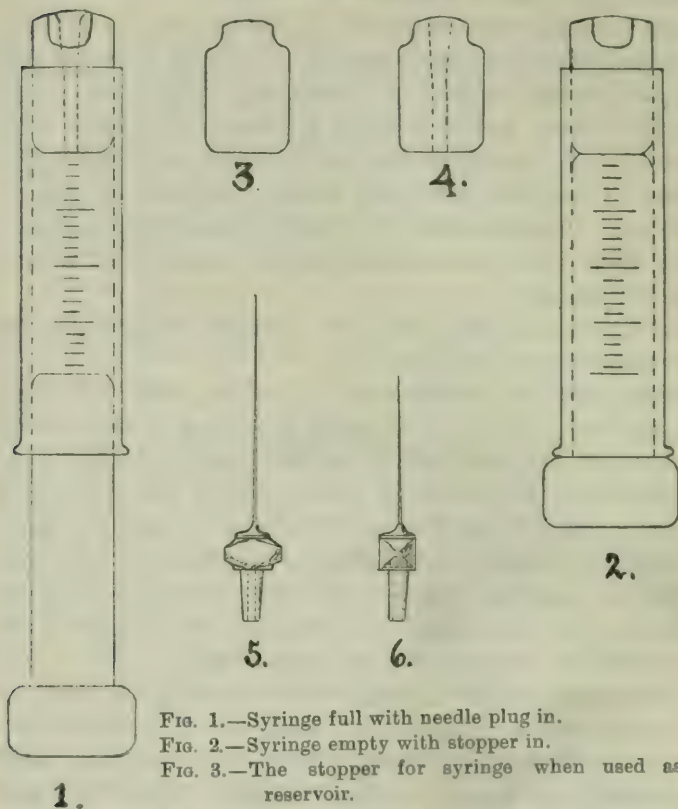


FIG. 1.—Syringe full with needle plug in.

FIG. 2.—Syringe empty with stopper in.

FIG. 3.—The stopper for syringe when used as reservoir.

FIG. 4.—The needle plug.

FIG. 5 and 6.—Long needle and short needle.

This syringe is supplied at present only by Messrs. Price & Co., 26 Clare Street, Dublin.

ART. XV.—*Proposed Sterilisation of Certain Degenerates.*^a By ROBERT R. RENTOUL, M.D., &c.

IN 1903 I proposed—among other items—that it should be made illegal for any person to issue a permit to marry, or to join in marriage, or to marry any idiot, imbecile,

^a Address read before the Psychological Section of the British Medical Association, July, 1910.

feeble-minded, epileptic lunatic, chronic inebriate, habitual vagrant, habitual criminal, drug habitué, sexual pervert, deaf mute, or markedly neurotic subject. I further proposed that all the above—these not being legally responsible for their actions—should be so surgically operated upon that they could neither beget nor conceive offspring. These proposals I would have brought forward some ten years antecedent to 1903 could I have induced some publisher to publish them! But it is a strange feature in the publisher's moral standard that he will bring out a novel reeking of the sensual, erotic and prurient, but will refuse to publish a work relating to the *mental* conditions of poor Humanity.

The laws relating to the marriage of degenerates in the United States of America are of educational value, but to the sane only, as it is not just or reasonable to punish lunatics and the feeble-minded for their marriage or other actions, it can be at once seen that such laws are to these of no use. Nor will any practical person suggest that the feeble-minded consider the question of marriage when begetting offspring. Were there a compulsory medical examination of every person before marriage the above laws would be more useful. But here again the degenerate class would beget and conceive—marriage or no marriage, law or no law. Some years ago I called attention to the case where five weak-minded unmarried females had been delivered of thirteen idiot infants in a workhouse. Dr. Potts next told of where, in one workhouse, sixteen feeble-minded, unmarried females had no less than 116 idiot children. Later, Dr. Braithwaite has pointed out that 92 habitual inebriate women had had 850 infants. Will these poor demented demand marriage before maternity? I think to sterilise them is the only real cure. It was for this reason I suggested that we should surgically sterilise the degenerate classes. I propose that in the female we should divide and ligature the Fallopian tubes (fallectomy) and in the male either divide and ligature the vasa deferentia (vasectomy), or divide

and ligature the spermatic cords (spermectomy). These are simple and harmless operations; they injure neither the mental nor the physical condition, nor do the first two weaken the desire or power. They effectually, however, prevent procreation. They are fully described in the second edition of my work, "*Race Culture, or Race Suicide.*"

In this country there is a steady growing feeling in favour of my proposal. It is being now discussed in France, Germany, and Switzerland. Yet so far America is the only country which has legislated upon my proposed operation.

Thus, on February 10th, 1907, the State of Indiana passed the following Act:—

"An Act entitled An Act to prevent procreation of confirmed criminals, idiots, imbeciles, and rapists—providing that Superintendents or Boards of Managers of Institutions, where such persons are confined, shall have the authority and are empowered to appoint a committee of experts, consisting of two physicians, to examine into the mental conditions of such inmates.

"Whereas heredity plays an important part in the transmission of crime, idiocy and imbecility, therefore be it enacted by the General Assembly of the State of Indiana that on and after the passage of this Act, it shall be compulsory for each and every Institution in the State, entrusted with the care of confirmed criminals, idiots, rapists, and imbeciles, to appoint upon its staff, in addition to the regular Institution Physician, two skilled surgeons of recognised ability, whose duty it shall be, in conjunction with the Chief Physician of the Institution, to examine the mental and physical condition of such inmates as are recommended by the Institutional Physician and Board of Managers. If, in the judgment of this Committee, procreation is inadvisable, and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeons to perform such operation for the prevention of procreation as

shall be decided safest and most effective. But this operation shall not be performed except in cases that have been pronounced unimprovable."

This Act does not specify the operation to be performed. It includes confirmed criminals and rapists. It relates only to these confined in institutions. It fails in not providing a heavy penalty against these who sterilise degenerates without official sanction.

On April 20th, 1909, the State of California legislated as follows:—

"Chap. 720. An Act to permit asexualisation of inmates of State Hospitals and the California Home for the Care and Training of feeble-minded children and of convicts in the State prisons. The people of the State of California represented in Senate and assembly do enact as follows:—

"Section 1. Whenever, in the opinion of the Medical Superintendent of any State Hospital, or the Superintendent of the California Home for the Care and Training of feeble-minded children, or of the resident physician in any State prison, it would be beneficial and conducive to the benefit of the physical and mental or moral condition of any inmate of the said Hospital, Home, or State prison, to be asexualised, then such Superintendent or resident Physician shall call in consultation the General Superintendent of State Hospitals and the Secretary of the State Board of Health, and they shall jointly examine into all the particulars of the case with the said Superintendent or resident Physician, and if in their opinion, or in the opinion of any two of them, asexualisation will be beneficial to such inmate, patient, or convict, they may perform the same: provided that in the case of an inmate or convict, confined in any of the State prisons of the State, such operation shall not be performed unless the said inmate or convict has been committed to a State prison in this or some other State or country at least two times for some sexual offence, or at least three times for any other crime, and shall have given evidence while an inmate in a

State prison in this State that he is a moral and sexual pervert, and provided further that in the case of convicts sentenced to State prison for life who exhibit continued evidence of moral and sexual depravity the right to asexualise them as provided in this Act shall apply whether they have been inmates of a State prison either in this or any other State or country more than one time."

It will be seen that this Act differs considerably from that of Indiana. Thus the Indiana Act places the carrying out of the Act upon two skilled surgeons and the institution physician—these forming a "Committee of Experts." If this Committee thinks sterilisation advisable, then the operation takes place.

In the California Act, the Superintendent or Resident Physician must call in consultation the General Superintendent of State Hospitals and the Secretary of the State Board of Health—two very important officials.

The Indiana Act refers to "confirmed criminals, idiots, imbeciles, and rapists." But the California Act follows my original suggestion in so far as it includes those guilty of sexual offences and moral and sexual perverts. It also applies to those who have committed such offences outside the United States.

Neither Act lays down what operations shall be performed—vasectomy, spermectomy, fallocotomy, ovariectomy, or orchotomy. The Californian Act uses the word "asexualised"—thus permitting ovariectomy and orchotomy. This is a very grave mistake, as my proposals would in no way rob the patient of his or her sex characteristics. To "asexualise" a person certainly means to rob them of their sex powers and sex characters. Both Acts include males and females. Neither of the Acts makes it an offence if other surgeons operate on persons for the purpose of preventing impregnation or conception. This also is a very grave lapse, and should be remedied forthwith.

On August 12th, 1909, the State Legislature of Connecticut enacted as follows:—

“An Act concerning operations for the prevention of procreation. Be it enacted by the Senate and the House of Representatives in general assembly convened.

“Section 1. The Directors of the State Prison and the Superintendent of State Hospitals for the Insane at Middletown and Norwich are hereby authorised and directed to appoint for each of the said institutions respectively two skilled surgeons who, in conjunction with the physician or surgeon in charge at each of the said institutions, shall examine such persons as are reported to them by the Warden, Superintendent, or the Physician or Surgeon in charge, to be persons by whom procreation would be inadvisable.

“Such Board shall examine the physical and mental condition of such persons and their record and family history so far as the same can be ascertained, and if in the judgment of the majority of the said Board procreation by any such person would produce children with an inherited tendency to crime, insanity, feeble-mindedness, and idiocy or imbecility, and there is no probability that the condition of any such person so examined will improve to such an extent as to render procreation by such person advisable, or if the physical or mental condition of any such person will be substantially improved thereby, then the said Board shall appoint one of its members to perform the operation of vasectomy or oophorectomy, as the case may be, upon such person. Such to be performed in a safe and humane manner, and the Board making such examination, and the surgeon performing such operation shall receive from the State such compensation for services rendered as the Warden of the State Prison or the Superintendents of either such Hospitals shall deem reasonable.

“Section 2. Except as authorised by this Act, every person who shall perform, encourage, assist in, or otherwise promote the performance of either of the operations described in Section 1 of this Act, for the purpose of destroying the power to procreate the human species; or

any person who shall knowingly permit either of such operations to be performed upon such person—unless the same be a medical necessity—shall be fined not more than one thousand dollars, or imprisoned in the State prison not more than five years, or both.”

The second section of this Act is of the utmost importance. It will be noted that the Act, unfortunately, provides for the removal of the ovaries. But why remove the ovaries when division and ligature of the Fallopian tubes will act as perfectly? My whole aim is not to remove either the testes or ovaries.

In 1905 the Legislature of the State of Pennsylvania passed a Sterilisation Bill, but for so far the State Governor has refused to sign it. This Bill is as follows:—

“Whereas, heredity plays a most important part in the transmission of idiocy and imbecility.

“Therefore, be it enacted by the Senate and House of Representatives of the State of Pennsylvania, that on the first day after the passage of this Bill it shall be compulsory for each and every institution in the State entrusted with the care of idiots and imbecile children to appoint upon its staff at least one skilled neurologist and one skilled surgeon of recognised ability, whose duty it shall be in conjunction with the chief physician of the institution to examine the mental and physical condition of the inmates.

“If, in the judgment of this committee of experts, and the Board of Trustees, procreation is inadvisable, and there is no probability of improvement of the mental condition of the inmate, it shall be lawful for the surgeon to perform such operation for the prevention of procreation as shall be decided safest and most effective, but this operation shall not be performed except in cases that have been pronounced non-improvable.”

This Act refers only to hospitals for idiot and imbecile children, and does not refer to habitual criminals, sexual perverts, lunatics, or other degenerates.

In 1906 the Legislature of the State of Wisconsin discussed a Sterilisation Bill, but postponed passing it until an investigation was made regarding the mental defectives of the State.

In 1908 the State of Oregon Legislature passed a Sterilisation Bill, but, as the State Governor did not sign it, it has not yet become law. It will, however, be again presented on January, 1911, when, if a majority of each House vote for its passing again, it will become law, no matter whether the Governor refuses to sign it or not.

This year (1910) a Bill for Sterilisation was introduced into the Ontario (Canada) Legislature, but their Prime Minister spoke so strongly against it that the Bill was withdrawn.

These references complete my knowledge regarding the Bills passed and rejected by different Parliamentary bodies. A reference to the last edition of my work shows that many influential persons are in favour of it. Later than its issue, Dr. J. Kerr, Medical Officer to the Education Committee of the London County Council, in his 1908 Report, when writing on mentally defective children and their proposed segregation, says—"A much more humane and scientific idea than mere segregation, and more economical to the State, would be to deprive such individuals of the objectionable powers and capacities, at the same time relieving them of the passions and desires, before the time at which these develop" (page 62).

In 1906, Dr. Stansfield, Medical Superintendent, Banstead Asylum, reported to the Asylums Committee, London County Council:—"The question of the sterilisation of the insane becomes more and more pressing." He further pointed out that the birth-rate among the degenerate class is not falling at the same rate as that of the sane. Statistics show that the average fertility of degenerate parents is 73 when compared with 4 of non-degenerate parents.

What are the alternatives to my proposals?

Forced Abortion.—Dr. Clouston, in the Sixth Edition

of his "Mental Diseases," recommends abortion and premature labour in cases of marked insanity. This is of little use. The woman could become pregnant repeatedly, and every neurotic female would be demanding abortion.

Murder of Degenerates.—To me it is extremely painful to find so large a number of apparent Christians demanding the murder of a class of persons who are not legally accountable for their actions or mental conditions. It would be a strange action for the community to appoint certain medical murderers to kill off degenerates! Fancy a poor struggling practitioner being offered £50 or £100 to kill an idiot child or a senile relative. The mere idea of the lethal chamber is repulsive to any thoughtful man or woman.

Forbidding the Degenerates to beget Children.—Such a proposal is as helpful as is that of abortion or murder! The degenerates may be said to fear neither God nor law. Certainly he or she will not consider the sad result of either actions. And practical men know that the mental and physical contamination of our race does not begin only after a marriage ceremony.

Suicide.—While one considers the large yearly number of insane and others who perform suicide, and who thus help to keep down the great total of weak-minded, weak-willed and degenerate classes, it is to be noted that while suicide increases, so also does degeneracy. Therefore, suicide will not give much help.

Lifelong Incarceration.—Were all degenerates, likely to beget tainted offspring, so dealt with, the expense to the taxpayer would be unbearable. It is more than heavy at present. In my work, "Race Culture or Race Suicide," page 36, I show that in one year in the United Kingdom we expended £13,081,000 on the upkeep of the mentally and physically degenerate classes. This expenditure is absolutely unproductive. Not only so, but it renders the work of these asylum doctors and others therein engaged as absolutely unproductive. The Lunacy Commissioners have lately pointed out that asylum ex-

penditure has increased from £200,535 to £370,474, or 78 per cent. That is, no decrease of insanity, but enormous increase of expenditure. I think that £50,000,000 yearly would not cover the cost: more than we expend upon our navy each year! One lunatic has been known to cost poor law guardians £1,300. But the question of expense is not the only objection to life-long incarceration. The proposal is cruel. It is suggestive of punishment, and punishment of the irresponsible. There is surely a large degenerate class who could be allowed to be at large, if only they had been sterilised. The sexual degenerate, the sane epileptic, the harmless weak-minded, the confirmed drug habitué and inebriates; the confirmed vagrant and confirmed criminal; the prostitute and the markedly neurotic class. These are active begetters of markedly degenerate children; but they can work, or be made to work. Something less drastic and less expensive to the taxpayer than life-long incarceration is wanted, and that is my simple, non-dangerous and non-expensive proposal—sterilisation.

This much is certain. For years we have been content to build palatial asylums and overload the taxpayer so that he is so pressed that he can neither marry, nor, if married, have a large family. The Commissioners in Lunacy state that in January, 1909, there were in England alone 128,787 insane officially reported (we know there are some thousands more *not* reported). In one year the increase of the insane—even with the help of those poor suicides—was 2,703. In 1859 there were only 36,742 officially known insane. Since then the insane rate has increased by 250 per cent., while the population has increased only 81 per cent.—a magnificent display for a nation supposed to be educated, even up to the seventh school standard! One in every 250 of the population is officially described as a lunatic! One in every 5 of criminals is a lunatic. Two of every 3 in inebriate houses are feeble-minded. These figures are but a finger-post, pointing thoughtful minds to a ghastly future. The

medical inspection of school children is bringing a sad state of affairs to the point. The mentally defective children about 150,000 in number in England—will beget an army of insane. We have about 34,015 "sane" (!) epileptics—all potential begetters of more insane. Sociologists know that a very large proportion—probably 75 per cent.—of vagrants, criminals, alcoholics, deaf-mutes, drug habitués, sexual perverts, rapists, the weak-willed, the markedly neurotic, and prostitutes are mentally defective, and *must* bring forth degenerates if we curse them by allowing them to. Shortly before Dr. Barnardo died (1904) he wrote me, saying—"Some step will have to be taken in the near future if we are to protect the nation from a large addition of the most enfeebled, vicious, and degenerate type." Do we propose to permit the degenerate class to go on begetting more and more degenerates until there are more insane than sane, and until we sink the already over-taxed taxpayer beyond recovery? To-day unthinking Society says "Yes." I feel certain, however, that the To-morrow will say "No," and with no uncertain, cowardly, popularity-hunting, or shuffling voice.

ART. XVI.—*The Catalogue of the Library of the Royal College of Surgeons of England.*^a By VICTOR G. PLARR, M.A.; Librarian of the Royal College of Surgeons of England.

WILL you permit me to say that I feel a certain difficulty in treating of library matters? I may honestly confess that I have never attempted such treatment before. One does not ask one's cook to descant on how she cooks the dinner or the baker's boy on how he carries round the bread. One's postman seems to act automatically and to be beyond questioning, and no man is required to describe how he puts on his coat in the morning or divests him-

^a Reprint, with additions and alterations, of a Paper read at the Meeting of the Medical Library Association, held in London, July 27 and 28, 1910.

self of it at night. It has, indeed, always seemed to me that this difficulty as to writing about library matters is inherent in librarianship, which is the quintessence of obscure and faithful routine, and I have often wondered whether Library Associations are not attempting an impossible task when they ask librarians to become conscious of themselves and to analyse an almost instinctive set of practices. Still, I have endeavoured to-day to be analytic and descriptive, and, if I have been discursive in the course of my small attempt, you must forgive one who has hitherto been very little conscious of the "shop" of the great calling we are all proud of.

The last printed Supplement to the Author Catalogue of the Library of the Royal College of Surgeons of England was issued in 1860, and then for many years, as the library rapidly increased, a rough card-catalogue was kept by Dr. Chatto, the former librarian. It was my immediate predecessor, the late James Blake Bailey, who determined to catalogue the whole collection according to the then quite modern index-method.

He entered light-heartedly on what has proved to be an enormous task, and he must have worked very hard during the earlier years of his decade-long tenure of office, which began in 1887 and ended in 1897. In the later years of his life at the College Mr. Bailey was most pluckily engaged in taking an Arts Degree at the University of Oxford, and must have often spent but little time in the library during any given week. And some few years before his death he was incapacitated by illness from doing any work. I am, perhaps, not far from the truth, then, when I state that Bailey's part of the Catalogue was written in some five or six, or at most seven, years. It is a monument of elegant manuscript work—a monument, too, of accuracy, and scholarship, and faithful critical care. It is a great example to us all.

Ten years ago, after learning my business in company with my old friend Mr. Hewitt, and researching and writing on the subject of the College Centenary, I was

free to begin cataloguing in earnest, and am now glad to report that the Catalogue in ten years has doubled itself. Some 47,000 cards have been written by me, and the rest of our zealous staff have contributed a large number, so that now our three card-cabinets of forty-eight drawers each contain some 100,000 cards in all. Among other things, be it added, we have of late years catalogued about one thousand volumes of "tracts" each volume containing on an average about fifteen pamphlets—as well as hundreds of volumes of theses. There remains little to be done—for what we call "the Large Library" is catalogued—save some three hundred large volumes of French and Latin theses, perhaps six thousand pieces at the outside.

As medical librarians you all know the kind of cards I have been alluding to, and the kind of book-titles and subjects. Some cards are, of course, very short—mere cross-references. Others are portentously lengthy, for though in writing titles it has always been our endeavour to keep them neither too short nor too long, yet some titles have a way, as you know, of breaking bounds, so to speak, and of insisting on being written out to the bitter end. The old writers, indeed, seemed anxious to put the best part of their book into the title, and the habit has not quite died out yet. We still from time to time have to deal with some heavy work, the paper of which is loaded with clay and the title-page with quite unnecessary verbiage. It would be an excellent plan, to be sure, if children at school could be taught how to christen a book, since in these latter years we are all by way of commencing authors. The making of a title is, indeed, a small art in itself. I speak feelingly—if you will allow me to be very egotistic—as a book-title of my own has won for itself the dubious distinction of an elucidatory addendum (in brackets) in the British Museum Catalogue. The pamphlet is "The Twilight of the Jenners," and the Museum cataloguer has thought fit to specify (parenthetically) who the Jenners were, as

though there were some doubt about the matter. On the same page in the catalogue I find that a namesake of mine, one Martinus Plarrius, who wrote a thesis in the seventeenth century, has had his Latinity corrected, he having attempted to perpetrate some terrible solecism, which would have got him flogged in schoolboy days. We do not now sin in the matter of Latin, for the simple reason that we do not write it! But this, as Mr. Kipling would say, "is another story."

A book-title should, of course, have no dubious element in it. It should be absolutely definite. The classifier is faced by so many recurrent difficulties in the course of his daily toil that he cannot afford to be met by titles looking Janus-faced upon the reading world. Thus no man ought ever to use the genitive case in such a way that it is uncertain whether the objective genitive or its cousin, the subjective genitive, is intended. Let me make my meaning clear by an example. "The fear of the enemy," to take an instance from Farrar's "Greek Syntax," may mean "The fear felt *for* the enemy," or the fear felt *by* him. We seem to have once come across some such title as "The Dread of the Consumptive," but, after all, these difficulties are rare nowadays. They chiefly beset the path only of the cataloguer of old literature. The modern habit, which is excellent and is growing, of making the outside and inside titles of a monograph or paper-covered pamphlet correspond exactly is all in favour of the cataloguer, who may now, in most cases, copy his title from the outer face of his thesis. I say "thesis," for in the case of many larger works authors still allow themselves infinite vagaries. I think of a very bulky book encountered only the other day. On the back, facing the public, so to say, this work appeared as "The Surgeon's Vade-Mecum"; the half-title described it as "The Alpha and Omega of Surgery"; on the title-page, among a mass of quotations, the title seemed to be "Experiences of a Life-time spent in the Practice of Bloodless Surgery," while on the tops of the pages there was what the shops

call "an entirely novel line" to wit, "Therapy of the Soul," a phrase in no way alluding to the previous designations of the portly volume. The title-page, as students of Cutter are aware, should be followed when there are several titles to choose from. Backs of books often witness to the flights of fancy, to the caution, or the predilections of librarians. Thus a work, probably somewhat famous among readers at King's College, London, is labelled on its outside simply "The Book." My own copy of the same work is labelled—for the outside title is on a label—"Trial of the Queen." Now, the Queen in question was Queen Caroline, and we can well imagine that at King's College, soon after 1820, her trial was not to be openly mentioned. Hence "The Book," a curiosity in its way, dear to collectors, and usually purchasable for 3s. 6d. Backs of books are, indeed, descriptive guides. In medical libraries, by the bye, something of the nature of this "Book" frequently occurs, if not on the shelves, then in the recesses of the librarian's desk. There are suppressed books, for instance, such as a work, involving a grave breach of medical etiquette, relative to the illness of the late German Emperor. These works are best catalogued in a separate volume, entitled "The Reserved Collection." It is always well to have a reserved collection: it adds to the mystery and dignity of the library! We are credited by the Bacon-Shakespearians with the possession of one, and we are, therefore, presumably in the secret of the true authorship of Shakespeare's plays, and wild horses shall not tear from me any explicit information on the subject! But jesting apart, a reserved collection is necessary in a medical library, which is sure to contain many confidential documents, such as case-books of recently-deceased physicians and surgeons, which should be preserved, but not read. The medical librarian stands, in fact, on a somewhat different footing from his colleague the general librarian. He is in the "*Sécret Médical*" in a very real sense. His responsibility is great: he must constantly

obey his sense of honour. But of this we hope to speak on some future occasion. It is too large a subject for the present paper.

Classification, to resume our theme, may be described as a high science, for it evokes intellectual effort of every kind. The good classifier must be a sound logician, able to seize upon the essentials of a title with something approaching to speed. When one is confronted by a long title there must be as little beating about the bush as possible. One must be able to decide almost off-hand under what general heading a title comes. If one falters, or puts the vexatious title aside, one only doubles one's perplexities. The custom at the College of Surgeons Library is to keep travelling steadily on with the Catalogue, and when we meet with a book-title where subject upon subject seem inextricably interwoven, we simply cut the Gordian knot by writing cross-references. Such a lumbering title, for instance, as "An Account of the Sufferings of two Ladies during a six weeks' detention at the bottom of a crevasse in the Alps of the Bernese Oberland, with an Appendix containing a brief Historical Survey of the History of Mountaineering from the Earliest Times to the Present" should come under some such heading as "Endurance, Physical," or "Fatigue," and cross-references can be made to this heading from "Mountaineering" and "Bernese Oberland." It is best not to worry ourselves unduly over the question as to whether we have rightly classified our title so long as we make plenty of cross-references.

The "Sufferings of the Ladies," by the bye, was a book-title with which a certain eminent librarian used to terrify intending "Classifying Clerks" as long ago as 1882, when I had the honour to serve under him in that capacity for a period. Another and more awful title, which fell to our lot to classify at sight, was this simply:—"De Cornutis."

It loomed on me horribly as something catchy and incomprehensible, and with the perspiration starting out

on my juvenile forehead, I gasped: "De cornutis—concerning horned beasts."

"Yes," said the eminent librarian, very grimly, "they *are* horned beasts."

My knowledge of mediæval satire was then necessarily limited, and I did not know that *cornuti* were "cuckolds" in the jargon of ancient satirists. I question if many would pick up this piece of information at any time during their earthly pilgrimage. And here, *pave* my eminent friend, I must enter a strong protest against the tendency of librarians—a tendency which they share with pedagogues—to make their subordinates or those whom they advise "feel small." This is by the way, but it is necessary. The librarian must not laugh. He must be an actor. When an old friend of mine was asked by a student in a great hurry, a London candidate of the old school—perhaps they tend to grow scarcer!—with only a month in which to prepare for an examination involving the solid culture of many years—when this young London man said to my friend—"What about *Andromatch*?" my friend, the librarian of the great educational institution, kept a grave face and only remarked—"Some people call her *Andromache*—it's their way." "Well," said the student, "it's not mine. Quantity doesn't come into our examinations—it's rubbish!"

The librarian should never smile: indeed he should be merciful even as he intends and hopes to receive mercy. And the same is true of the cataloguer. Who can fearlessly laugh at those classic entries—"Mill on Liberty," "Mill on the Floss"—which occurred, by the bye, in the pioneer Index-Catalogue in the Library of the South Kensington Museum? Who, especially in our very out-of-the-way department of library work, can lay his hand on his heart and declare that he has never committed what the schoolboys call a "howler"?

A catalogue, in the long run, tends to become a queer, a rather pathetic, amalgam of old ideas and modes of thought. Nosology with us is a fluid matter.

"Typhoid," for instance, has long held sway in our catalogue, and it continues to hold sway, but during the South African War it was hard beset by "Enteric," a disease-name now surely on the wane. "Consumption," a good word, gave place to "Phthisis," a dreadful word, and both are now swallowed up in "Tuberculosis," which is not descriptive of lung disease alone, and therefore much too vague a term. The X-rays have never obtained proper recognition in our catalogue: we still keep a curious old heading—to wit, "Photography"—which is supposed to include them. In matters of Psychology catalogues are far to seek. I find in ours, "Mind and Body," a charming handy dualistic classification not permissible in these days of monism. I could multiply instances. One finds one grows to regard the oldest subdivisions with affection. Had our catalogue been begun in the days of the great Sam Johnson—had one of his medical friends perchance begun it—we should find such headings as "The Rising of the Lights," "The Green Sickness," "The Gripping of the Guts," "The Humours," and "The Vapours."

We, in our catalogue, somewhat arbitrarily cross-refer "The Vapours" to Hysteria. The term was vague at the time it was used: in the old novelists' writings it applies to the general conduct of a woman of the type of Lydia Languish. Then, too, "Hysteria" grows shaky, and may soon topple into the limbo whence "Neurasthenia" has not yet succeeded in rising. After the Johnson epoch came other diseases, dear to sentimental romancists, such as brain-fever, palsy, and decline. "Spotted-fever," quite of late, has enjoyed only a short vogue and is replaced by an immense term, but it was a fine picturesque designation, however incorrect, suggesting Job and his potsherd in the old illustrated bibles of the sixteenth century.

Nosology is a proud science, but quite transitory—always in a flux. Medical science moves very rapidly, and constantly goes back on itself, eating its own

children, as did the French Revolution more than a century ago. It is only by assiduous attention to cross-references that we can cope in any degree with its mutations. A day will come, I am told, when the whole of our catalogue will require a drastic rescension. But there is nothing final in rescensions. Hence, I do not look forward to that day, and trust it will be after my time, for there is still much to do.

I do not at all wish to boast, but I may honestly say that in my thirteen years' tenure of office, we have received only *one* complaint with reference to the written catalogue—praises, of course, the dogged and faithful labourer never expects in this unhappy world, and certainly never receives. The complaint was from a gentleman who said that we were in error as to the name and style of one of Napoleon's army-surgeons. We added several cross-references to our store, and bowled along. Our plan is never to do less than twenty-five cards a day. We might do more. In early days we wrote some forty a day, but this is a kind of work that requires to be done very carefully. Anything in the nature of hurry and rush destroys the whole tenour of our effort. We must avoid mistakes at all costs, and leave everything prepared once for all for the printer, and subject, too, to the scrutiny of the learned eyes of medical experts, our readers. Hence our motto now is "*Festina lente!*"

The cards, of course, are in many languages—English, French, German, Italian, Latin, Greek, Spanish, Portuguese, Russian, Swedish, Norwegian, &c. In the matter of Scandinavian, I should like here to note how much we are indebted to the kind help of Dr. Cyriax, who bears down on all Norse book-titles as becomes an erudite student of the Eddas.

I particularly mention this amiable and learned reader because in time the tried librarian grows shameless, and, as it were, sponges on all those who can help him. When he has been a librarian all his life he probably ceases to feel nervous about confessing ignorance on any given

point. A medical librarian is fortunate in being surrounded by one of the most learned and charming bodies of readers to be found on the earth's surface. A librarian is presumably omniscient. All librarians tend towards encyclopædic accomplishments. The nature of their work perforce must stock even the average mind with a variety of knowledge, especially if that mind be not swamped by routine and questions as to whether labels should be round or square. But the best-informed librarian may be excused if he refreshes his omniscience from without whenever occasion offers!

A word to young librarians—if they will excuse it. *Never* hesitate to ask for help. Do not think that by asking for help from an erudite reader you are lowering your prestige. Point out to him, if you care to, that you rarely need help. That will be true. As a matter of fact, no notice is taken in this world of the many times that a man acts, or writes, or thinks, correctly. The eyes of the world are directed only towards mistakes. Disregard this habit of the world. Confess that you are in a strange fix, which he—the reader—alone can pull you out of. That will put the thing on its proper basis, and will flatter him. Let your catalogue be your witness, let the conduct of your library be your witness, if there be any murmuring about inefficiency and soforth. Such murmurs come from quidnuncs and busybodies who have never managed libraries. There is, indeed, a curious generic similarity about complainers. In a language library, a theological, engineering, general science, oriental, or even school library—and with all these I have had something to do—the complainers make the same kind of complaints or proposals. They are like the committee men, whom we have often known, who propose that all “back numbers,” all books more than five years old, should be burnt. The wise librarian learns through long suffering to cope with these gentlemen recurrently. At times, of course, the fire burns within him and he indites a good matter. In sleepless nights, the pale librarian—

insomnia is certainly his portion in this world—will think over his position with the strange logicality that belongs to the early dawn, and will wonder why, in lettered England, rich with the traditions of Milton and Shakespeare, he continues to rank very little above a hall-porter, while in France *Monsieur le Bibliothécaire* is at least on the level of the colonel of the local garrison. The librarian's mission in this world will appear to him in colours which the early morning does not exaggerate, and he will cry aloud—"I at least am a conservator of the world's knowledge. I at least am not to be ranked with the destroyers of what has been built up so laboriously in the past. At least I count for something in the history of civilisation! It is we who have carried on the torch-race of culture, while others have turned aside or slept!"

Ghostly voices from monasteries of the dark ages will echo assent to him. Where would all the erudition of antiquity have been but for monkish keepers of manuscripts?

Earlier in this paper I said that the cataloguer makes an intellectual effort of every kind at every turn. He does so indeed. He must be, as has been stated, much of a logician. But, furthermore, he must be much of a reasoner, something of a rhetorician, something of a grammarian, much of a geographer, a polyglot linguist, a man acquainted with the movements of science, a man of letters, a man of the world, a traveller. Every scrap of knowledge you and I have ever acquired must be pressed into our service. I well remember the tradition of a cataloguing librarian, who was also a great organiser, and who is one of our household words. Now this paragon was gravelled by a little detail—the Frenchman's custom of christening his male children by the name of some woman saint. He could not make out why a French doctor of eminence was called "Marie" So-and-So. He put all the "Marie" cards on one side. They were to him bogies—so much Greek. No, he had learnt Greek! But he had manifestly never read the labels of

the eau-de-Cologne bottles, signed by Maria Farina, a man. In Brittany the small nobles—the men—are often christened Ann, but my learned librarian was not a traveller, had not visited France at all, knew nothing of the voluminous literature of the Chouan Wars. No sort of blame attaches to him in this, of course. Even the most generously cultivated men are often guilty of strange hiatuses in their sum of knowledge. Who does not remember sixth-form boys at a public school of old repute for scholarship who knew absolutely nothing about the changes of the moon? Who has not met the cultured Roman Catholic with no proper knowledge of Saint Bartholomew's Day or Guy Fawkes's Plot: the Oxford metaphysician, admirably versed in Plato and Hegel, but lamentably far to seek in the common facts of Darwinism: the counterpart of that Cambridge don of Trinity, who said recently of a portrait of Tennyson in the historic dining-hall of his college—"Oh, *that!* It's some old Johnnie!" (we must beg you to pardon his very modern slang!); the type of learned Prussian who only once stayed the night in Paris and declared that he was kept awake till dawn by the sound of a man beating his wife, and who deduced from this that the French were all ripe for Tophet and deserved 1870?

Let us all as librarians—for I have already referred to readers and to their occasional questions about "Andromatch"—make what haste we may to avoid hiatuses of the kind I have somewhat glaringly indicated. Such hiatuses are possible: those I indicate have been actually encountered.

A librarian, furthermore, must be prepared in the course of his cataloguing to read largely in order to discover the gist of some old book when its title, as often happens, explains nothing. In our particular work he must be much of a Latinist, and the better grasp he has of that mysterious and obscure product of human perversity, the——language, the better for him.

Nature abhors sudden leaps and bounds, and in library

work there is nothing sensational. We build with little thin bricks, slowly and laboriously, in the grand structure of civilisation. Our bricks, being of cardboard, are, indeed, so small and thin that after a long lifetime a good bibliographer shall with difficulty have set up, between himself and outer barbarism, a small section of a wall, literally only a few feet, or rather inches, square. His are not the ornamental triumphs of a Pannizzi: his are not even the successes of some erudite master of diplomatics, such as Bradshaw of Cambridge, or Dibdin, or any of their fortunate family. No honours, or printed eulogies come his way: he is necessarily anonymous; but, as his little wall rises under his hand, he hopes and trusts obscurely that his building is true by rule and square, and that, unless his catalogue be consumed by fire—for libraries have been burnt since the days of Alexandria: witness the burning of the priceless library of Strasbourg in 1870—that it will remain a monument *ære perennius*. Or, again, to change the metaphor, a faithfully conducted catalogue resembles an in-coming tide, that, like the waters in Clough's poem, comes flooding in through far-off creeks and bays, smoothly, slowly, perpetually, while no one in the sunlit foreground of dry land is in the least aware of its untiring onset and increase.

The arts of the library are not sensational, or they should not be. Hence, gentlemen, inventions are rare among us. We have been able to introduce only one small innovation into the general scheme of cataloguing, or at least of our own catalogue. For some five years now it has been our custom to catalogue bibliographies, or "literatures," ancient and modern, wherever found. We keep a catalogue of literatures, dated, in a drawer, apart from our three card-cabinets. This catalogue now contains some 1,500 entries, and has been of use to researchers.

Another innovation I would like to suggest is this, that when an author-card involves many subject-cards, then the headings of the subject-cards should be noted on the

back of the author-card. It sometimes happens that a book-title has to be altered or even withdrawn from circulation: we have had only recently to withdraw a set of MS. volumes of a too confidential nature from our collection, and to destroy the cards referring to them. Then, if that book-title has been prolific of subject-headings, you may perhaps only chance to remove or correct the author-card and one or two leading subject-cards depending upon it—such, for instance, as you may happen to remember—and may leave several others in the catalogue, which will remain as a kind of dead-heads or bogies, confusing to the readers and librarians of the future. If, on writing an author-card which involves the writing of a number of subject-cards, you indorse the metropolitan or author-card with the subjects, you have obviously a clue to the whole extent of the emigration originated by that metropolitan or author-card in your catalogue. And when a clearance (or alteration) becomes necessary you are able to make it complete and final.

An innovation that I cannot at this late hour introduce into our catalogue is the use of leading-cards and the proper estimation of the sizes of books. My old school-fellow and present learned colleague, Mr. Archibald Clarke, remarked lately on the antique nature of our cabinets, and I had with shame to confess that as the tree falls so must it lie. We were pioneers, I imagine, in medical index-cataloguing in this country, and so there was nothing to check or correct us, and, in those old days, we knew nothing about leading-cards and cards with cut-down waists. We have had of necessity to continue the catalogue on the original lines for structural reasons, if for no other.

As to the sizes of books, Mr. Bailey judged them by the look of the thing. He did not trouble to count between signatures when dealing with books of old date: his great aim was to be practical. We have followed in his steps. Our aim has always been to keep our work homogeneous with his, but candid people must understand that

we are not botching our work in this matter, and that the sizes we attribute to books must not be taken as a guide by exact bibliographers of the future.

We, of course, owe an intense debt of gratitude to the great "*Index Medicus*," that marvel of industry, and accuracy, and learning. When in doubt as to what course to pursue we refer to it, and we follow its guidance where possible, though we sometimes venture to simplify its subject-headings in our own catalogue.

There is a psychology of the cataloguer. One does not always work equally and on the same lines. Sometimes, as you are aware, one is in a more meticulous mood than at others, one multiplies subject-headings unduly, or writes out titles more fully than usual. This becomes apparent when, in the course of years, one finds that one has catalogued the same book twice, on which occasions one will sometimes observe that one title is too long, another by comparison too short. A good cataloguer will need to regulate his mental pulse, so to speak, and to keep it beating as far as may be at one rate. The spirit of his work and of his library will help him here: for a library must in time influence its constant denizens through the immanence of the ghostly authors within it.

"Neither can I cast my eye casually upon any of these silent masters," says old Bishop Hall, writing "*Upon the Sight of a Great Library*," "but I must learn somewhat: it is a wantonness to complain of choice.

"No law binds me to read all: but the more we can take in and digest, the better liking must the mind's needs be: blessed be God that hath set up so many clear lamps in his church.

"Now, none but the wilfully blind can plead darkness; and blessed be the memory of these His faithful servants, that have left their blood, their spirits, their lives in these precious papers, and have willingly wasted themselves into these during monuments, to give light unto others."

What, after all, is more touching than a vast collection of books? For every separate work represents the finest

that was in some man, who was, perhaps, a poor sort of individual otherwise. With what travail was it brought to birth— even supposing it to have been the most common of efforts. How it tore its author and how he loved it!

A keeper of books, a recorder of their titles, is in some sort a priest of all that is noblest in the history of the human brain. Let me, in conclusion, quote to you some lines about books and an old library, written by a well-known modern poet, who was also in his day a Dublin physician, my old friend, Dr. John Todhunter:

“ IN AN OLD LIBRARY.” *

“ Here the still air
Broods over drowsy nooks
Of ancient learning : one is ware,
As in a mystic aisle
Of lingering incense, of the balm of books.
So nard from cerecloths of Egyptian kings
Solemnised once the sepulchres of Nile.

“ Here quietness,
A ghostly presence, dwells
Among rich tombs ; here doth possess
With an ecstatic dread
The intruder seeking old-world oracles
In books, centuries of books, centuries of tombs
That hold the spirit of the crownèd dead.

“ Go softly ! Here
Sleep fair embalmèd souls
In piled-up monuments, in their sere
And blazoned robes of fame,
Conquerors of Time. Whisper to these grey scrolls,
Call Poet, Sage, Romancer, Chronicler,
And every one will answer to his name.

“ Man walks the earth,
The quintessence of dust :
Books from the ashes of his mirth,
Madness, and sorrow, seem
To draw the elixir of some rarer gust,
Or, like the stone of Alchemy, transmute
Life’s cheating dross to golden truth of dream.”

* In “ The Second Book of the Rhymers’ Club ” (Matthews and Lane).
1894.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Influence of Strong, Prevalent, Rain-bearing Winds on the Prevalence of Phthisis. By WILLIAM GORDON, M.D., F.R.C.P. London: H. K. Lewis. 1910. 8vo. Pp. xiv and 108. 22 Maps.

THE climatology of phthisis is a subject which from time to time has occupied the attention of many workers, and though at one time very much stress was laid upon it yet the inferences to be drawn from the observed facts seemed so inconclusive that in recent years other matters have almost completely overshadowed it in importance. The recent development of sanatorium building has, however, again brought the matter into prominence, and reliable information on the subject has become a desideratum of great importance. Dr. Gordon has undertaken an investigation of the influence of the prevalence of rain-bearing winds, and incidentally has compared this influence with that of other climatological conditions. He is careful to tell us that he is dealing only with the influence of this condition on phthisis mortality and not with its influence on the treatment of phthisical patients, but it seems obvious that if his contention is proved in the former case it must be of very considerable importance also when considering the subject of treatment. We may say at once that a careful study of Dr. Gordon's evidence has convinced us that at all events he has established a *primâ facie* case, and unless further evidence can be produced, or some fallacy in his conclusions pointed out, one must accept his conclusion that strong, prevalent, rain-bearing winds are the most important climatological factor in the production of phthisis mortality. The further consequences of this conclusion in regard to treatment must also be faced, and faced at once,

unless the conclusion is disproved forthwith. The evidence derived from the phthisis death-rate in the streets of Exeter has seemed to us perhaps the most remarkable that Dr. Gordon has produced, and indeed is so remarkable that it makes one suspect its validity; yet one finds that it is quite borne out by the results derived from other and widely different sources. We would suggest that the investigation should be extended to the lower animals in order to find out if a similar conclusion could be arrived at concerning phthisis prevalence in them. If that were so Dr. Gordon's contention would receive very strong support, and possibly also such observations might lead to some solution of the "why" as well as of the "that" of the conclusion. We must congratulate Dr. Gordon on the admirable work he has done and also on the way it has been done and the way in which the results of his labours have been presented to his readers.

The Principles of Hygiene. A Practical Manual for Students, Physicians, and Health Officers. By D. H. BERGEY, A.M., M.D. Third Edition. Philadelphia and London: W. B. Saunders Company. 1909. 8vo. Pp. 555.

THE saying "Prevention is better than cure" has been accepted as a truism in medical matters for a long period of time, but it is only comparatively recently that our knowledge has been sufficiently accurate to give preventive medicine the importance that it is now recognised to deserve. The last half of the nineteenth century was characterised by great advances in the prevention of disease, but if one might venture into the domain of prophecy we should be inclined to say that the first half of the present century will witness advances in this department of Medicine undreamed of by our fathers. The advance has been so rapid that the life of a text-book dealing with the subject has become extremely short, and the necessity for constant revision has become imperative. In the present edition the work before us has been brought

thoroughly up to date and former conceptions also have been brought into accord with the recent advances in knowledge. The book is well printed, and the numerous illustrations are not only good in themselves but help to explain the matters referred to in the text.

The Health of Nations. Compiled from Special Reports of the National Councils of Women. London: Constable & Co., Ltd. 1910. Pp. 191.

ONE does not require to be in sympathy with recent developments of the Women's Suffrage movement to recognise the increasing influence of educated thought amongst the women of the world on the great social problems of the day. To co-ordinate this force the International Council of Women was formed in 1888. It is a federation of National Councils or Unions of Women existing in various countries for the promotion of unity and mutual understanding between all associations of women working for the common welfare of the community. The National Councils already affiliated are those of the United States, Canada, Germany, Sweden, the United Kingdom, Denmark, the Netherlands, New South Wales, Tasmania, Victoria, South Australia, Queensland, Italy, France, Argentina, Switzerland, Austria, Hungary, Norway, Belgium, Greece, and Bulgaria; while in Russia and in Finland measures are being taken to form Councils.

The volume before us consists of special reports concerning public health in the respective countries, presented at the meetings of the International Council in Canada last year. Generally speaking, these reports have been drawn up with special reference to (1) the care of infants and children, (2) the housing of the people, (3) the conditions under which working women carry out their work, and (4) the measures in force against tuberculosis. The result is the collection of a great amount of information which it would be extremely difficult to procure elsewhere. The value of the book for purposes of reference would be enhanced if the measures adopted in the various countries

in specific cases (for example, in regard to the State control of tuberculosis) were tabulated in appendices. While the reports are of very unequal merit, the whole shows progress in almost every direction, and emphasises the great field of work which exists for women in the sphere of social service.

Three Lectures on Epilepsy. BY W. ALDREN TURNER, M.D., F.R.C.P.: Physician to King's College Hospital. Edinburgh: John F. Mackenzie. 1910. Demy 8vo. Pp. x + 63.

DR. ALDREN TURNER'S name is well known in connection with the study of epilepsy since the publication of his book on the subject some years ago, and in consequence the present little work, which is a reprint of the Morison Lectures for 1910, will be read with interest as coming from one who speaks with authority. Those who have read the larger work will naturally find that the lectures contain much with which they are already familiar. The chapter on treatment in particular can of necessity contain nothing very new. We notice, however, that the author now speaks favourably of Gelineau's combination of bromide with picrotoxin and antimony arseniate. He has also had good results with a combination of bromides and calcium lactate. We wonder if the efficacy of this latter combination will outlive the author's acceptance of the view that the ingestion of calcium salts does not increase the coagulability of the blood.

The first chapter, entitled the "Problem of Epilepsy," presents a most interesting and lucid summary of our knowledge concerning the different varieties of epilepsy, and the pathology and cause of the so-called idiopathic form. This is, to our mind, the best of the lectures. The second lecture is interesting but rather brief. It is entitled "The Border-line of Epilepsy," and contains a short account of phenomena which, while not convulsive in character, are yet believed to be epileptic in origin,

and which have of late years excited much attention. The lectures as a whole are suggestive and well worth perusal.

The Extra Pharmacopœia of Martindale and Westcott.

Revised by W. HARRISON MARTINDALE, Ph.D., F.C.S., and W. WYNN WESTCOTT, M.B. Lond., D.P.H., H. M.'s Coroner for North-East London. Fourteenth Edition. London: H. K. Lewis. 1910. Pp. xxvii + 1054.

Organic Analysis Chart. By W. HARRISON MARTINDALE, Ph.D. Marburg, Pharmaceutical Chemist. A Supplement to the Extra Pharmacopœia. Fourteenth Edition. London: H. K. Lewis. 1910. Pp. 80.

"MARTINDALE AND WESTCOTT'S EXTRA PHARMACOPŒIA," as this most useful work is familiarly called, is without the pale of criticism—more particularly of hostile criticism. Its value is too well-known; its practical usefulness has been too long and too often tested to shake medical and pharmaceutical confidence in its contents.

So far as the present edition is concerned, we observe that its form has undergone a marked change. The book is of much larger size than the former editions. Its exact dimensions are $6\frac{5}{8}$ inches in length, $4\frac{1}{2}$ inches in width, and 1 inch in depth. Had it been issued in its original shape the volume would have contained over 1800 pages and would have been upwards of 2 inches in thickness, and, therefore, cumbrous. As it is, the book is just as handy as ever it was, while its pages are rich in modern therapeutic lore.

There are new chapters on the Bacilli of Lactic Acid, Organic Arsenic Compounds, Iontophoresis, or the electrical introduction into the tissues of medicaments in the ionised condition; and Radium. In addition, there is a long list of new pharmaceutical and chemical preparations, including "Calcii Permanganas," an article on the use of which, in gastric ulcer and other gastrointestinal affections, from the pen of Dr. G. Arbour Stephens, of Cardiff, appeared in our September number.

Mr. Harrison Martindale's "Organic Analysis Chart," issued as a supplement to this edition of the "Extra Pharmacopœia," is a meritorious piece of work—the outcome of *some* laboratory work which we have conducted," as the author modestly puts it. We have italicised "some," for in truth the labour involved must have been immense, and Mr. Martindale and his able assistant, Mr. H. Johnson, Pharmaceutical Chemist, deserve the greatest credit for their researches. The "Chart" is broken up into eighty pages of the same dimensions as those in the "Extra Pharmacopœia," with which we think it might without inconvenience have been bound up. It is intended to assist in the recognition of a number of organic chemicals, both natural and synthetic, which are used therapeutically. The data in the "Chart" have practically all been observed by personal trials in Mr. Martindale's laboratories. Following the Chart are corroborative data with reference to text-books. The methods of procedure adopted are mentioned and explained. We quote, as example, the first two steps in analysis:—"HEAT 0.1 Gm. in a 3 by $\frac{1}{2}$ inch test-tube heated in a Bunsen flame."

"HEAT WITH SODIUM HYDRATE.—0.1 Gm. of the substance with about five times its weight of roughly crushed sodium hydrate, mixed in tube and heated."

The only complaint we have to make is in reference to the rapidity with which successive editions of the "Extra Pharmacopœia" are published. We possess four or five separate editions—the outcome of comparatively few years.

The Dublin University Calendar for the Year 1910-1911.

Vol. I. Dublin: Hodges, Figgis & Co. 1910. Cr. 8vo. Pp. viii + 61* + 466.

THIS volume makes its timely appearance with the beginning of Michaelmas Term, and will be welcomed accordingly by Freshmen, Sophisters, and Candidate Masters alike.

Its pages contain the usual information, but they are not always free from error. For example, when it is stated on page 49 * that the first meeting of the Council for the Academic year will take place on December 7, 1910, whereas in the Almanac the first meeting is correctly set down for November 9. A less pardonable mistake is the insertion of the name of "John Magee Finny, M.D.," as King's Professor of Practice of Medicine, Dr. James Craig having been elected to that Chair on July 8, 1910, on Dr. Finny's resignation.

The papers set at ordinary Term Examinations in the Academic Year, 1909-1910, are as usual appended. In the Astronomy paper for the degree of B.A., in Michaelmas Term, 1909, question 9 begins—"The altitude of the Sun was observed to be the same at 5 45 a.m. and at 6 15 a.m. on August 28, 1893." A young graduate observed that such a state of things had not taken place since the time of Joshua!

But, after all, these are only trivial inaccuracies, and as Editors ourselves we are quite prepared to excuse them, and in conclusion to say that this issue of the "Dublin University Calendar" contains a fund of Collegiate information and is indispensable as a guide to students of the University past, present, and to come.

Pulmonary Tuberculosis and its Complications. with special reference to Diagnosis and Treatment, for General Practitioners and Students. By SHERMAN G. BONNEY, A.M., M.D. Second Edition, thoroughly revised. With 243 original illustrations. Philadelphia and London: W. B. Saunders Company. 1910. 8vo. Pp. viii and 955.

It is just a little over a year since we reviewed the first edition of this work in these columns, and that a second edition has been called for so soon quite justifies the favourable opinion we then expressed about the work. The present edition has been thoroughly revised and much new matter has been added, the size of the book being

increased by nearly two hundred pages. The author has taken the opportunity of this new edition to review the more important contributions to the last meeting of the International Congress on Tuberculosis held in Washington. In its present form the work before us presents in a very complete way our knowledge on the various phases of the tuberculosis problem, and to it the practitioner in search of information may turn with confidence; but for the sake of his readers we would urge the author when the next edition is called for to reduce rather than increase the size of the book.

Diseases of the Colon and their Surgical Treatment. By
P. LOCKHART MUMMERY, F.R.C.S. Eng., B.A., M.B.,
B.C. Cantab. Bristol: John Wright & Sons. 1910.
8vo. Pp. vii + 322.

IN Mr. Lockhart Mummery's book on "Diseases of the Colon" we have put before us in a readable manner the results of his large experience in this branch of surgery, and for this, if for no other reason, it is a book which ought to be read by not only surgeons but physicians. It is only of late years that disease of the colon has received the attention it deserves, and in this book we have the first concise account of the various conditions which may be met with, so that it fills a distinct want.

Mr. Mummery may be regarded as the pioneer in this country of the electric sigmoidoscope, and it is largely due to the information gained by the use of this instrument that the recent marked advance in our knowledge of diseases in the colon has been made. All through the present work attention is called to the assistance that the sigmoidoscope gives in enabling a correct diagnosis to be arrived at. There are many excellent plates and illustrations of the various conditions seen with the aid of the instrument; indeed the book might almost be looked on as a larger edition of the author's earlier book on "The Sigmoidoscope." Again and again Mr. Mummery points out that a definite diagnosis can in a number of con-

ditions be made only by the use of this instrument, and largely by its aid he is able to prove that in the great majority of cases of mucous and membranous colitis there are definite lesions in the colon. He thus upsets the older neurosis theory of Nothnagel.

The most disappointing chapter in the book is the first—that on the anatomy of the colon. This chapter is marred by several errors. For instance, "The colon extends from the ileo-cæcal valve to the recto-sigmoidal junction." (Next paragraph)—"The length of the colon varies . . . the average length is *twenty-two* inches." In the same chapter he also describes the cæcum as getting part of its blood supply from the middle colic artery, and writes of "The Sigmoid Flexure *or* Pelvic Colon," making no mention of the iliac part of the colon as the upper fixed part of the old sigmoid flexure is called by present-day anatomists.

However, when one comes to the subject-matter proper of the book one is not disappointed, as the reader is constantly made aware of the fact that the author is describing conditions that he has actually seen and dealt with, and indeed this is the chief charm of the book. At the same time, Mr. Mummery has evidently gone fairly deeply into the literature of his subject, and constantly quotes the results of other surgeons, and gives tabulated series of cases showing the results of different methods of treatment or otherwise throwing light on debatable points.

There are several parts of the book to which many surgeons will not give unqualified approval. For instance, the author is not in favour of, and, indeed, does not mention, the extensive resections of the colon recently advocated by many surgeons in *all* cases of cancer. That there are definite indications for these extensive operations has been shown by the excellent work of Handley on the permeation of the lymphatics in the sub-mucous coat of the bowel by cancer cells. The last-named author has shown that islets of cancer cells are found in the sub-mucous lymphatic plexus at a distance of many inches from the primary growth, which may be quite a

small one, not infiltrating the whole thickness of the bowel wall, and with no secondary deposits in the immediate lymphatic glands.

Again, when writing of the treatment of acute intestinal obstruction due to growth, Mr. Mummery advocates the formation of an artificial anus whenever the tumour cannot be brought out and resected by Paul's method. Many surgeons find that in these circumstances the drainage of the intestine obtained by a colostomy is quite adequate, and this operation has the great advantage that the opening left is much easier to close than an artificial anus, while it does not shorten or fix the bowel to the same extent—an important consideration whenever one hopes to resect the growth later on. On the whole, the book is excellent, and no doubt should be looked on as a preliminary to a more comprehensive work on the subject, especially as the subject is one in the study of which almost daily advances are being made. When the author publishes a larger work, as we hope he will, he may rest assured that it will be given a hearty reception.

Saint Thomas's Hospital Reports. New Series. Edited By DR. H. G. TURNERY and MR. W. H. BATTLE. Vol. XXXVII. London: J. & A. Churchill. MDCCCXC. 8vo. Pp. xii + 369.

No annuals so accurately mark the progress of Scientific Medicine as the reports of the great London hospitals. The great numbers that find shelter within their walls and the diversity of their ailments provide a wealth of information, abundant and accurate, that we may seek in vain elsewhere. In the volume before us we have reports from some fifteen departments of medicine, and in the majority of them an interesting summary of the more unusual class of cases is given.

Of the sectional reports the most interesting as evidence of progress are that on pathology from the Louis Jenner laboratories, the Report of the X-ray Department, that of the Physical Exercise Department, and the Salter

Research Report. Conspicuous by its absence is the Anæsthetic Report. At a time when the effect of anæsthetics on blood-pressure and their uses in the status lymphaticus are exercising anæsthetists over the world we might reasonably expect that Saint Thomas's Hospital staff would add their experience to the general store.

The morbidity of the past year is shown by the class of cases admitted and the most approved therapeutics by their treatment.

The Salter Research Report is edited by Dr. E. A. Ross, and our excuse for drawing the attention of our readers to it is its great value as an impartial and hopeful statement of the therapeutic use of vaccines. It is plainly the work of an unbiassed mind bent on the search for truth and offered as a contribution to illumine some of the dark problems of medicine: to point out pitfalls and aid us in our onward path. The cases dealt with include all those treated by vaccines at the hospital from February to December, 1908. A bacteriological classification is adopted, and is, as regards the infective micro-organisms, divided as follows:—*Staphylococcus pyogenes aureus*; *Pneumococcus*; *Bacillus coli*; *Staphylococcus pyogenes albus*; *Streptococcus pyogenes*; *Bacillus pyocyaneus*; *Bacillus proteus*; *Gonococcus*; *Staphylococcus pyogenes citreus*; *Bacillus typhosus*; *Meningococcus*; an unknown bacillus.

It was found that smaller doses of the vaccines than those formerly given, and given at shorter intervals, produced better results than were formerly obtained. No local or constitutional phenomena are seen after the first few injections, and the course generally consisted of six or eight injections—that is to say, vaccine treatment lasted from five to six weeks.

The opsonic index was not taken in any of the cases. The temperature chart was always observed during the course of treatment, and nothing was there to contra-indicate the giving of the injections. It was found that while certain cases do perfectly well on stock vaccines, there are others which do not begin to show improvement

until treated with their own cultures. We think we have shown enough of the great value of the Reports to warrant our readers in becoming subscribers to this annual. We selected but one report—we did so, among other reasons, because it shows the results of the most recent advance in Medicine, and that in little more than a bird's-eye view, space does not allow of even such a cursory view of surgery, medicine, X-ray reports: to enumerate their wealth of information would fill a complete number. The whole 369 pages contain a wealth of information so classified and arranged as to be available for reference to specialist and general practitioner alike; and to both it should be a rich mine of information: facts stated without prejudice or even bias and conclusions drawn with indifference and wholly due to the facts as noted by first hand.

The value of the present volume is greatly enhanced by the General Index for Volumes XXVI. to XXXVII. which it contains.

Australasian Medical Congress. Transactions of the Eighth Session, held in Melbourne, Victoria, October, 1908. Melbourne: J. Kemp, Government Printers. 1909.

THE Transactions of the Eighth Session of this great Society occupy three large octavo volumes, and contain very many valuable papers. The immense mass of material makes it impossible for anything approaching a detailed examination of the papers to be published. We can do little more than draw attention to some of the more interesting papers which are published and try to give our readers some idea of the valuable contributions our Australian brethren are making to medicine. Professor H. B. Allen, President of the Congress, opened the meeting with an address on syphilis, which gave rise to a prolonged discussion. It is a splendid summary of our knowledge of the disease, and we note that neither the president nor any of the speakers accepted Mr. Herbert

Spencer's view that in these latter days syphilis has been robbed of its terrors. In the Section of Medicine Dr. G. E. Rennie opened the proceedings with a paper—"The Mental Factor in Medical Practice"—in which he quotes with approval the statement of a contemporary that "there is no department of medicine in which the average medical man is so poorly trained as in psychopathology." We can and do appreciate his anxiety to secure further teaching on this deeply-interesting study; but we must ask ourselves where will the medical curriculum end if students are required to learn more of the subject than the alphabet. The writings of Tuke, Maudesley, and Clouston are for post-graduate students, and our appreciation of Dr. G. E. Rennie's writing may be best expressed by saying that they are worthy of being classed with the psychologists above named. Tuberculosis was the subject of the presidential address by Dr. B. Poulton. Like Mr. George Bodington, he recognises that not alone in town dwellers but also in isolated buildings, in spite of fresh air and sunlight, tuberculosis will be developed in dirty, dimly-lit, stuffy cottages, and once more repeats the warning of Ollier, of Lyons, that osseous tissue, especially in growing children, is liable to infection. Dr. Poulton, however, goes further, and pleads for the isolation of tubercular cases that may from the location of the disease fairly be called surgical. The whole paper is practical and suggestive, and the evils of infection from such cases are well told.

Anæsthesia is the subject of five papers. The first is by Dr. T. Zwar. It is the record of 278 cases of spinal analgesia, and is the most valuable paper we have as yet read on the subject. No bias influences the author of the paper, and, like Crusol, he notes the good and the bad. He tells of nausea and vomiting, collapse and temporary paralysis, and quotes König's case of fatal paraplegia. As a rule, headache, backache, and pains in the limbs followed the method. In one case respiratory paralysis necessitated artificial respiration for a period of thirty-five minutes. Spinal analgesia is, however, possessed of some advan-

tages. Dr. Zwar found an almost entire absence of reflex shock; an ability to take food immediately after the operation; and it can with greater safety be used in operations on the lower abdomen in alcoholics, diabetics, and those suffering from severe cardiac and pulmonary lesions. And he notes the fact that in operations on the prostate there is a lessened liability to hæmorrhage. Some of the undesirable effects he ascribes to imperfection in the technique, and hopefully looks forward to their elimination. Dr. Sutherland writes on "Cases Unsuitable for Chloroform Anæsthesia," in which he reiterates the opinions expressed by Dr. Frederick Hewitt, at the Dublin meeting of the British Association, that the anæsthetic should be selected for the case. A short practical paper, "Local Anæsthesia in Operations on Children for Empyema," follows. In no single instance has the author found it necessary to use a general anæsthetic in the cases described—in one and all the local anæsthetic answered well. "General Anæsthesia in the Light of Recent Pharmacological Research" is the title of Dr. Embley's paper. We cannot, in the space at our disposal, do anything like justice to this great contribution to our knowledge of the lethal properties of our principal anæsthetics—chloroform, ethyl-chloride, and ether. We would like to see the article reprinted and made a subject for compulsory examination by all our medical licensing authorities. The article, after clearly setting forth wherein the dangers from the drugs named lie, emphasises the necessity that exists for the training of anæsthetists, and shows how faulty are the ordinary methods of administration of anæsthetics. Septic Peritonitis, the subject of Dr. Duncan's paper, which is principally interesting for his advocacy of opening the distended and paralysed intestines, gave rise to a prolonged and instructive discussion, in which the great majority of those taking part supported the author's views. We must conclude this long review, and we do so with noticing the treatment of extensive burns by dry dressings as suggested by the Hon. Dr. Cread. He reports a very interesting case of an ex-

tensive burn, extending over the front of the thorax, face, and skull. He discontinued the use of carron oil and substituted boric acid with good results. The Congress is to be congratulated on the three volumes of Transactions, which are of great and permanent value.

Experimenteller Beitrag zur Kenntnis der Fettgewebnecrose. Von C. FRUGONI und G. STRABIOTTI. Sonderabdruck aus der Berliner klinischen Wochenschrift. 1910. No. 9.

THE authors show by experiment that pancreatic juice causes necrosis when brought into relation with fatty tissue, as in the case of intraperitoneal injection. The same holds true for inactive juice activated by a kinase.

First, there is pure fat necrosis, then around such spots an inflammatory reaction commences, so that a young connective tissue rich in giant cells is formed round, and, finally, calcification sets in, converting the whole into a calcified node.

Chemical analysis shows the presence of fatty acid soaps, glycerine, peptone, and tryptophan in the necrotic areas.

The normal endothelium of the peritoneum acts as a barrier to this action. It probably occurs at places where, through injury or normally, the endothelium is loosened.

It is improbable that injurious substances can be carried by the blood, in which it is probably neutralised. Fat necrosis in the chest following on an intraperitoneal injection must be looked on as occurring by a transfusion of the juice through the lymphatics of the diaphragm.

Transactions of the American Association of Genito-Urinary Surgeons' Twenty-first Annual Meeting, Washington D.C. 1907. Vol. II. New York: The Grafton Press.

SPACE does not allow of a detailed notice of the many excellent papers of this bulky volume of Transactions,

which in print and illustrations is superior to any annual that we receive. Its large, clear type on good unglazed paper is refreshing to the eyes.

Of the papers, that on "Kidney Transplantation" is worthy of study, even if it were only to learn to what a length our American surgical brethren are prepared to go to relieve by operation cases usually considered hopeless. The author of the paper, Dr. George Whiteside, having by a series of experiments on dogs and rabbits found that he could excise portions of a kidney and transplant sections of a healthy kidney from another animal, proceeded to experiment on dogs to test the possibility of inserting the whole gland. His eighth experiment was attended with success. He writes:—"I did an end-to-end suture of the renal artery with the renal artery, the renal vein with the renal vein, and the cut ends of the ureter with each other." He is very hopeful of the future of surgery, and firmly believes that this procedure will be developed and placed upon a solid basis before many years have passed. Drs. Brown and Osgood supply an addendum to their Report of 1905 on the "Production of Sterility by Prolonged Exposure of the Testes to the Röntgen-ray." They furnish particulars of eighteen cases, the majority of whom were medical men engaged in taking skiagraphs. Dr. Cabot's article on "Removal of the Prostate," giving an account of thirty-seven operations, is a complete vindication of the perineal method of excision. The volume is a splendid testimony to the daring and skill of our Transatlantic brethren.

Catechism Series. Chemistry, Part II. Inorganic and Organic. New Edition. Edinburgh: E. & B. Livingstone.

SUCH compilations or pamphlets as the one under notice are the worst *pabulum* that can be offered to a student, and it is a pity that there is any demand for these mischievous *excreta* of literature.

PART III.

SPECIAL REPORTS.

REPORT ON MEDICINE.

By T. GILLMAN MOORHEAD, M.D., F.R.C.P.I., Physician to
the Royal City of Dublin Hospital.

I. TUMOUR IN THE REGION OF THE CORPORA QUADRIGEMINA.

WILLIAMSON reports a case of sarcoma in the region of the corpora quadrigemina, and discusses the diagnosis of tumours in this region. The patient was a girl, aged fourteen, who suffered from headache, vomiting and optic neuritis, but who on first examination presented no localising symptoms. Later some evidence of involvement of the upper motor neuron was obtained, and staggering ataxia developed, with a tendency to fall forwards. Similar ataxia was observed in a case reported by the same author twenty years ago, in which a tumour of the corpora quadrigemina was found at autopsy. In neither that case nor the present case was paralysis of the fourth cranial nerve looked for, but Williamson believes that ataxia with a tendency to fall forward with paralysis of the fourth nerve should in all cases suggest a tumour of the quadrigeminal region. In such cases additional paralysis of one or both third nerves would confirm the diagnosis.—*Medical Chronicle*. August, 1910.

II. ANTI-TYPHOID VACCINATION.

Major Russell discusses the value of anti-typhoid inoculation according to Wright's methods, and gives in detail the technique employed in the U. S. Army. Since February, 1909, up to the date of his paper, completed records of the vaccinations of 1,400 men were collected, and it was found that, out of 135 cases of typhoid occurring in approximately

75,000 men, only one case was in a man who had been vaccinated. Amongst the conclusions arrived at the following are the most important:—(1) Vaccination against typhoid undoubtedly protects to a very great extent, and is an indispensable adjunct to other prophylaxis among troops; (2) it is very doubtful if there is any increase of susceptibility following inoculation; (3) vaccination during the disease, for therapeutic purposes, fails to reveal any evidence of a negative phase; (4) the statement that vaccination should not be carried out in the presence of an epidemic is not justified by facts.—*Johns Hopkins Hospital Bulletin*. March, 1910, p. 83.

III. THE CONDITION OF THE PUPILS IN THE NEW-BORN.

As is well known, the pupils of adults contract during sleep and dilate suddenly to a maximum at the moment of waking. In new-born children the contraction during sleep is slight, and the dilatation on awaking is very slow, and does not extend to more than about midway. Gudden is of opinion that this condition, which persists during the first year of life, is due to the general want of development of the oculomotor nucleus, and of the optic apparatus. The sudden dilatation on waking is, according to Gudden, a psychical reflex which appears in children when the higher centres of consciousness begin to develop.—*Munch. med. Woch.* 1910. No. 8. Hans Gudden.

IV. ATONY OF THE CÆCUM.

Fischler, in an article on atony of the cæcum, states that the diagnosis of so-called chronic appendicitis is always a difficult one to make correctly, and that of late it has too frequently been made. In many cases that have been operated on a negative result as far as the appendix was concerned has been disclosed, and after the operation the pain has remained unaltered, or at most has been only slightly relieved. Fischler believes that the symptoms in many of these cases are due to more or less well marked muscular insufficiency of the cæcum resulting from chronic catarrh. A secondary appendicitis may result, but mere removal of the appendix cannot cure these cases. The pain in these cases is said to differ from that of true appendicitis in that it is most acute external to

MacBurney's point, and is unaccompanied by muscular rigidity. Per rectum no tumour can be felt, and in all cases cæcal gurgling can be elicited. Treatment consists in careful regulation of the diet, exercise, massage, and as drugs, bismuth and burnt magnesia. Oil enemas are useless.—*Mitteilungen aus den Grenzgebiete der Med. u. Chirurg.* Bd. XX. Heft 4.

V. VERONAL IN DELIRIUM TREMENS.

Möller reports some cases of delirium tremens which he treated by means of large doses of veronal, with excellent results. Soon after the commencement of symptoms the patient is given one gramme of veronal, and if this dose does not induce sleep a further gramme is given after three hours. Sleep follows almost immediately, and usually lasts from six to twelve hours. On waking the patient is, as a rule, clear and calm, and feels quite well; if, however, any tremor persists half a gramme of veronal is administered, and a similar dose is given at night for three or four days. Only in three out of 100 cases treated in this manner was an unfavourable result obtained. No toxic results were observed in any of the cases.—*Berlin klin. Woch.* 1909. No. 52.

VI. BLOOD PRESSURE IN CHILDREN.

Kriss has studied the blood pressure in healthy children, and states that the pressure gradually rises with increase of age, of height, and of weight. Children of the same age, but of different weight and height, have different pressures. Sex has no influence on the blood pressure.—*Archiv. f. Kinder-heilk.* 1910. Bd. 53.

VII. ACETONURIA IN SCARLATINA.

In many cases of scarlatina there exists an initial acetonuria of varying intensity and duration. Proskauer believes that its presence can be used in doubtful cases as an aid to the differential diagnosis between scarlatina and antitoxin eruptions, in the sense that a positive reaction is strongly in favour of a diagnosis of scarlatina, while a negative result is of no importance either way. The acetonuria, he states, depends upon the height of the fever and the severity of the sickness,

and its actual cause is to be sought not so much in the absence of carbohydrate from the diet, as in a failure of the tissues to utilise carbohydrate owing to the intoxication of the infectious agent. The acetone, he believes, is formed as a by-product in the transformation of fat into sugar.—*Arch. f. Kinder-heilk.* Bd. 50. P. 54.

VIII. TUBERCULOSIS OF THE BRONCHIAL GLANDS.

Huguenin has studied the subject of tubercular disease of the bronchial glands, and finds that, while in children primary infection is most common, in a few cases tuberculosis of the cervical glands precedes the bronchial gland disease. In primary cases the path of infection is through the mucous membrane of the pharynx, trachea, or larger bronchi. In adults primary infection is practically unknown. Secondary miliary tuberculosis he states, is usually due to ulceration of the glands into the wall of the superior vena cava or pulmonary artery. Diagnosis is extremely difficult, and the course of the disease is subject to wide variations. Sometimes a bronchus is compressed, so that auscultatory changes on one side of the chest may be noticed. Veins and nerves also may be involved, but in doubtful cases a diminution of the number of lymphocytes in the circulating blood may be the only significant sign. Ultimately X-ray examination may confirm the diagnosis.—*Corresp. Blatt. f. Schweizer Arzt.* 1910. No. 4, 5 and 6.

IX. EFFECT OF GELATIN ON BLOOD COAGULATION.

Renar has made twenty-four observations on eight animals with a view to determining the effect of gelatine on the coagulation of the blood, and has come to the following conclusions:—(1) Gelatine administered in large quantities by subcutaneous injection undoubtedly increases the coagulability of the blood; (2) after the injection the salt and fibrinogen content of the blood was not much changed; (3) The number of white blood corpuscles falls immediately after the injection, but later a distinct leucocytosis was observed; (4) the amount of fibrin present in blood clots increased after the injection, and this increase was found to persist for several days; (5) gelatine given by subcutaneous

injection is very rapidly absorbed; (6) the different reports on the therapeutic value of injections are due to some extent to faulty observation, and also to wrong methods of administration. Overheated gelatine should be avoided.—*Russki Wratsch.* 1910. No. 11.

X. INDICAN IN LIVER DISEASES.

Soldatow has made a series of observations relative to indicanuria in patients suffering from liver diseases. The observations were in each case made over a period of five days on a fixed diet, and as a control similar observations were made on healthy patients on a mixed diet. The conclusions he arrived at are as follow:—(1) Indican is frequently present in the urine in cases of hepatic disease; (2) the amount is not greater than that found in the urine of healthy persons; (3) its proportion to the total nitrogen content is not greater than in healthy persons; (4) its amount bears no direct relation to the diseases of the liver, the largest quantities being sometimes found in the least affected cases; (5) the injection of indol increases the amount of indican in the urine, if the liver is diseased, but this effect is not noticed in healthy persons; (6) indicanuria in both healthy and diseased is dependent mainly on putrefactive processes in the intestine; (7) the diminution of indican in the urine of animals poisoned by phosphorus is not due to changes in the liver, but to diminished power of absorption from the intestine.—*Russki Wratsch.* 1910. No. 11.

HYDATID CYSTS ON THE CONVEXITY OF THE LIVER.

M. CHAUFFAND (*Académie de Médecine*) draws attention to ballottement as a sign of the presence of hydatid cysts on the convex surface of the liver. The patient being placed in the dorsal position the ulnar border of the left hand is placed on the intercostal space immediately over the convexity of the viscus, and with the right hand pressed well backward to the right side of the spine a series of sharp upward strokes are made upward against the liver, when a distinct ballottement will be felt if hydatids are present.—*Gazette des Hôpitaux*, Année 83, No. 77.

PART IV.

MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF PATHOLOGY.

President—ARTHUR H. BENSON, M.B., F.R.C.S.I.
Sectional Secretary—W. BOXWELL, M.B., F.R.C.P.I.

Friday, April 8, 1910.

Pathological Report of the Rotunda Hospital.

DR. ROWLETTE read this Report, which was published in the number of this Journal for August, 1910. (No. 464. Page 81).

DR. STOKES asked for further information with regard to the pathology of the hydatidiform mole.

DR. BOXWELL said he was particularly struck with the comparative rarity of carcinoma of the uterus, considering the exceeding frequency of chronic endometritis. All the factors favouring carcinoma seemed to be present—the chronic inflammation and the epithelial proliferation—and yet it appeared rarely to go on to carcinoma. He wished to know whether adenocarcinoma of the body of the uterus was often directly traceable to antecedent endometritis, and whether these cases occurred at the menopause or at a later period. With reference to the specimen of the ruptured tubal pregnancy, the frequency of rupture was said to be due to the peculiar tendency to bore possessed by the fertilised germinal cell. Was it a mere coincidence that the germinal cells and the cells of cancer had then two characteristics in common—that of boring into surrounding tissues and a special form of mitotic nuclear division—characteristics possessed by no other cells in the body to the same degree? He felt some apprehension on hearing Dr. Rowlette's remarks with reference to the malignant tendencies of the common

multilocular ovarian cyst. These tumours, under the microscope, looked as if they might become malignant very readily, and yet he had nearly always failed to demonstrate any downright malignant change.

DR. O'FARRELL asked what particular solid-looking piece, in a case of cystic ovary, would Dr. Rowlette choose for microscopic examination in testing for malignancy. In the case of hypernephroma of the lung, he would like to know if there were any secondary deposits in the bones. He would also like to know if the carcinoma of the liver was secondary to the original cancer, or secondary to the secondary deposit in the lung, passing through the diaphragm.

MR. MOONEY inquired as to the present condition of affairs with regard to the diagnosis of gonococcus. They at the Eye Hospital had no difficulty in that respect, as it was generally coupled with clinical signs.

DR. ROWLETTE, in reply, said he believed that hydatidiform mole was a cystic proliferation of the chorionic villi; the villi proliferated unduly, and at the same time became cystic, and the rest of the ovum disappeared, so that one found, as a rule, nothing left but a mass of cysts. Occasionally one found a fœtus of a month's or six weeks' development, together with a mass of the mole formations. The condition was undoubtedly one of a mild degree of malignancy. In many cases the uterus did not completely empty itself, and if any remained it was likely to grow and make secondary deposits. Chorion epithelioma was a more malignant form of growth, consisting of structures also present in the mole, but without the cystic formation, and in many cases where mole had been observed the patient was found afterwards to suffer from chorion epithelioma. The rarity of carcinoma of the uterus as compared with chronic endometritis was even greater than appeared from his figures, as not all the curettings were sent to him for examination, when there was no possible suspicion of malignancy, whereas his figures gave the entire number of cases of carcinoma in which operation was performed. Endometritis occurred, he thought, chiefly before the menopause, while adeno-carcinoma occurred at or about the menopause or later. One would expect that the epithelial proliferation would go beyond bound and become malignant oftener than it did. In choosing a piece of cyst to examine, he generally chose the most solid part of what

was apparently an epithelial or a papillomatous structure. He did not think it was possible, without a more minute examination than was practicable in hospital practice, to rule out the possibility of malignancy. The making of a couple of hundred sections of a cyst was not possible, and one had to choose the most suspicious-looking part of the tissue. He thought the malignancy of the cyst was held in check to a great extent by the density of the fibrous wall, so that as long as the cyst wall was not broken down it was less likely to spread than after an operation in which any part of the cyst was left behind unprotected by the wall which originally closed it in. He did not think the malignant growth of the liver and diaphragm was secondary to cancer of the lung, as the cancer was apparently entirely of pleural spread in the thorax—not having reached the lung by the blood-vessels. The cyst was very large, and could not be removed without allowing the contents to escape, and it was possible that some of the papillary growths escaped in the first operation and were carried to the right hypochondrium. In the case of hypernephroma a careful examination of the bones was not made. With regard to the diagnosis of gonococcus, in the reports of some years ago on puerperal infection, the gonococcus was credited with a great amount of the morbidity. He was inclined to think that that was due to the mistake of regarding any diplococcus of its shape and staining reactions as being gonococcus, without regard to cultural characteristics or the position as regards the leucocytes. The diagnosis of gonococcus in the two cases last year, and the one case this year, was made by a process of exclusion. The diplococcus *A* was rather like the gonococcus in appearance; it did not grow very readily, but could nearly always be got to grow, to some extent, on ordinary agar; the gonococcus would not grow in that way, but only on such media as ascitic fluid or blood agar. Diplococcus *A* was more rounded than the gonococcus, and the leucocytes did not seem to have any special power of dealing with it.

Intra-ocular Sarcoma.

DR. A. H. BENSON exhibited specimens of intra-ocular sarcoma. Intra-ocular sarcomata were divided, according to the stage of development, into four stages for clinical purposes. The first condition was where a man simply began to lose his sight. The cause of the loss of sight was not so much the size of the

tumour as the amount of detachment of the retina which the tumour produced. Later on the tumour produced complete detachment, the tension rose, the lens became opaque, and in that stage it was difficult to differentiate from glaucoma. The third stage was where the sarcoma protruded through the cornea, and the fourth stage was where secondary involvement took place.

MR. MOONEY also exhibited similar specimens. Ciliary sarcoma, he said, was not very common. In five years they had got only two at the Eye Hospital, and he had one from the Mater Hospital from Dr. Werner.

DR. KIRKPATRICK complimented Mr. Mooney on the manner in which he had mounted the specimens.

DR. BOXWELL inquired as to how the shape of the eye ball was preserved.

MR. MOONEY, in reply, said he put the eyes in 10 per cent. formalin for twenty-four hours, and then froze and cut them. The cavity of the eye in each case was filled with weak formalin.

Two Brain Tumours.

MR. WILLIAM TAYLOR exhibited two brain tumours. The patient in the first case had been treated outside. She had then gone into the South Dublin Union, and subsequently was transferred to the Meath Hospital under Dr. Craig, who put her on iodide of potassium, but without benefit. She was then transferred to him with a view to operation. He tried to remove the tumour, adopting Horsley's method of dividing the procedure into two stages, first removing nearly the whole of the occipital bone to give complete freedom for dislocation of the cerebellum, and then removing the tumour later. The patient seemed to do very well, but on the second evening she developed pneumonia, and died next day. It was not a cerebello-pontine tumour, as they thought. It was apparently a tumour primarily pontine, and it would have been impossible to remove it without killing the patient.

In the second case, as it was obvious the patient would die unless something was done, he trephined him, but failed to discover anything. On account of the high tension in the skull he did not close the dura mater. The patient died a fortnight afterwards, and at the *post mortem* they found the tumour in the left occipital lobe. It was probably some kind of sarcoma, but had not as yet been microscopically examined. If they had been

able to see the patient earlier and get a clearer history they might have been able to localise the tumour, and possibly remove it.

DR. A. H. BENSON said the fact that in the second case there was neuritis on the right side, while the tumour was found on the left, was in direct contradiction to Victor Horsley's statement.

DR. MOORE said he had had a case of cerebellar tumour in the right side, in which the symptoms commenced in the opposite side, though they spread to the other side in time.

DR. KIRKPATRICK asked if there was any marked relief of the symptoms in the second case as a result of the opening of the skull. He thought that even where nothing could be done in the way of removal, relief from pressure could sometimes be given by operation.

DR. BCXWELL asked if there was any recent explanation of optic neuritis: was it a mere passive congestion, or was it inflammation proper?

MR. TAYLOR, in reply, said there was no relief in the second case, as the patient lay in a semi-unconscious condition until he died, and the decompression was not sufficiently great to give much relief. He had been under the impression that optic neuritis, so-called, was not a true inflammation, but a mere passive exudation. He had been careful to use the term "choked disc," purposely avoiding the misleading term neuritis.

Hypernephroma.

DR. O'FARRELL exhibited a specimen of the above. The patient, M. M., aged fifty-four; occupation, general house work; admitted into hospital 2nd November, 1909, discharged 29th December, 1909. Patient was married, had had eleven children; eight years since last confinement.

History.—Since December, 1908, patient noticed that she was getting thinner, but was in fairly good health till the end of May, when she began to vomit immediately after meals. The vomited matter consisted mainly of food stuffs, but on one occasion she had noticed that it was black in colour.

Early in June she had two attacks of epistaxis. She consulted a doctor, who drew her attention for the first time to a swelling in her left side, and recommended her to go into hospital.

She was admitted to the Gynæcological Department, but Dr. Alfred Smith, having examined her, pronounced the swelling not to be of pelvic origin, so she was transferred to the Surgical Ward under the care of Surgeon M'Ardle.

Present condition.—The patient complains of pain in the left side, increased by exertion or by lying on the left side. Her bowels act well, but a full bladder gives rise to pain in the left side; she also suffers from thirst and inability to retain solid food. The urine contains some albumen and pus.

On Examination.—A tumour was felt in the left side of the abdomen, extending from the upper edge of the pelvis to the costal arch and extending to the middle line in front. The tumour moves with respiration, and is slightly movable in an upward and side to side direction. There is a projecting node from the lower end of the tumour, which feels like the lower pole of a displaced kidney, but it cannot be defined above, as it is continuous with the general tumour. The tumour is dull on percussion, but it has the resonant colon in front to the outer side.

A diagnosis of kidney tumour was made, and it was determined to operate. Nephrectomy of left kidney performed by M'Ardle's method on 8th November. Recovery uneventful.

Pathological Report.—The specimen is about four times the size of a normal kidney. The upper two-thirds is taken up by a large tumour, the remainder being kidney, which appears as a projection from the tumour. The weight of the whole specimen is 1,075 grammes, and it measures 18.5 centimetres in length by 13 centimetres in its broadest diameter. It is to be noted that one-third of the kidney, about 6 centimetres, is from the outside apparently free from tumour.

There are many adhesions about the tumour, one particularly large at the convex border. On cutting open the specimen from convex border to pelvis it is seen to consist mainly of tumour, with very little normal kidney tissue, only about three centimetres being free from new growth, very much less than would appear from the outside.

The first thing that attracts the eye is a large, dark, circular patch, measuring seven centimetres in diameter, which is apparently encapsulated, and in position is quite close to the edge of the specimen.

The remainder of the growth is divided irregularly into lobules by thin connective tissue bands. It is limited by a kind of capsule on the outside, but on the inside the tumour encroaches upon the pelvis, into which portions of the tumour are seen to project. There are some small islands of tumour in the otherwise healthy-looking kidney substance. The whole tumour presents a variety of colours, from a dark red in the circular patch to a compara-

tively light grey colour at the pelvis. Throughout the specimen there are numerous yellowish caseous-looking spots.

The specimen presents the typical naked eye appearance of a hypernephroma.

The microscopical sections are particularly interesting, as they exemplify practically all the characteristics which are usually found both in the early and late stages in the growth of these tumours.

Section 1, taken from the circular, apparently encapsulated, portion.—The principal cells of the tumour are seen to consist of large globular or polygonal cells, with a distinct outline, and containing a well-defined spherical nucleus; these are termed "swollen cells." The cells are somewhat irregularly arranged in rows and columns, and are closely associated with the capillary vessels; it is this arrangement that recalls the appearance of the suprarenal cortex. The capillaries and fine strands of connective tissue between the cell columns run in a more or less parallel direction with the capsule, which is in places infiltrated by tumour cells. Towards the innermost portion of the section the tumour is broken up into large blood spaces, like an angioma, but in all probability this is due to extravasated blood. A very noticeable point is that there is a more or less marked infiltration by small round cells, in many places found in clumps.

Section 2, taken from the upper pole of the specimen.—This section has somewhat the nature of Section 1, but the connective tissue and small capillary vessels are distributed more irregularly among the cells, and have a tendency to run more at right angles to the capsule. Besides the "swollen cells" there are distinct "opaque cells" (not seen in Section 1). There are no large blood spaces in this section. Towards the innermost portion of the section there is a quantity of degenerated tissue. The fibrous capsule is free from tumour cells, but contains one or two patches of small round cells which are scattered throughout the section as in No. 1.

There are also several large cells somewhat similar to hyaline leucocytes in the section—i.e., a large cell with more or less clear protoplasm, having a bean-shaped nucleus which takes up about one-third of the cell area.

Note.—These cells form a large percentage of tumour cells found in the alveolar arrangement of Section 3.

Section 3, taken from the island of tumour in the kidney substance.—Shows more or less normal kidney substance slightly

congested. One portion is taken up by tumour, which shows a distinctly alveolar arrangement. In places the tumour cells push the fibrous tissue cells in front of them, forming a kind of capsule, but in several places they have infiltrated the kidney substance, and so have apparently assumed a malignant character.

Section 4, taken from a part adjacent to Section 3.—Shows kidney substance encroached upon by tumour.

A noticeable feature of this section is the appearance of giant cells scattered over the field, but more numerous at the advancing edge of the tumour.

Twenty-four years ago Grawitz made a very careful study of these hitherto unclassified tumours, and came to the conclusion that they had origin from adrenal rests in the kidney substance. This view has been confirmed by Lubarsch, Gatti, McWeeney and Kelly.

The main points in favour of the adrenal rest theory are :—

(a) The tumours correspond in position to the subcapsular islets of suprarenal tissue sometimes found in the kidney.

(b) There is a striking difference between the tumour cells and those of the renal epithelium.

(c) The presence of fat in the tumour cells and suprarenal cortical cells as against the absence of fat in the healthy kidney epithelium.

Now, Stoerk, in 1908, brought forward some fairly strong evidence against the suprarenal rest theory. This has been summarised in Dr. Trotter's very instructive lecture of the 10th February, 1909, on hypernephroma, and it is from that that the following points are derived :—

Points against the Suprarenal Rest Theory.—(i.) Why do hypernephromata always originate in the kidney and never in the suprarenal ?

(ii.) Why are tumours of the suprarenal (both benign and malignant) always different in structure from hypernephroma ?

(iii.) Suprarenal rests are found in the liver, but hypernephroma never occurs there.

(iv.) Suprarenal rests are commonest in the upper pole of the kidney, whereas hypernephroma chiefly affects the central part.

(v.) The sub-capsular theory is negatived by the fact that while suprarenal rests may occur actually in the substance of the capsule of the kidney, hypernephromata never do.

(vi.) Stoerk holds that "swollen cells," which are most

characteristic of hypernephroma, are quite unlike anything in the suprarenal body.

(vii.) That, although it is true that hypernephroma cells show doubly refractile substance as do the suprarenal cells, many other epithelial tumours show the same phenomenon.

(viii.) Stoerk holds that hypernephroma is essentially a tumour of tubular structure, tending to produce spaces and intracystic formations, while nothing of the kind occurs in the suprarenal.

(ix.) He produces evidence to show that in small "adenomatous" masses found in the kidney, undergoing degenerative changes, structures are to be found resembling very closely many characteristic parts of hypernephroma.

(x.) He concludes that the tumour must be classified as an adenoma, cystoma, papillare or carcinoma, according to the form in which it occurs.

Dr. Trotter, though not altogether falling in with Stoerk's views, thinks that his article has left the classification of this tumour in a somewhat doubtful state.

Pyonephrotic Kidney.

DR. O'FARRELL said his only excuse for bringing the specimen was to demonstrate the usefulness of clinical pathological methods—viz., blood count and urine examination.

As this was a particularly obscure case the investigation of the blood and urine greatly assisted in the correct diagnosis, and for that reason will be of interest to the members of the Pathological Section.

Kidney, No. 11, St. V.:—

Weight	-	1,015 grammes.
Length	-	16 centimetres.
Breadth	-	12 „

Kidney shows much lobulation, about twenty prominences, varying in size from hazel nut to small orange.

Kidney soft and fluctuating, capsule dense, 2 to 3 mm. thick, some dilated vessels on surface. Specimen full of pus.

Kidney, Case No. 11, St. V.—M. S., aged twenty-three; admitted into hospital 8th March, 1910.

History.—Patient never had been very strong, and has recently been wasting. About twelve months ago she complained of pain at the lower margin of the ribs, on the right side, which was more marked after standing, but was relieved by sitting down,

Constipation became more marked than it ever had been previously, and menstruation ceased. It was for this latter condition that the patient consulted a doctor, who prescribed for her. The pain was relieved, but the menstruation did not return. Subsequently a swelling was felt in the right lower abdomen, and in view of the symptoms some disease of the pelvic viscera was suspected. She was recommended to go into hospital.

Present condition.—A tumour can be palpated in the right side of the abdomen, which is internal in position to the colon. The colon is not connected with the pelvis.

A blood examination was made, which revealed a large increase in the number of polymorphonuclears, indicating the presence of pus somewhere. The urine was examined, and was found to be acid in reaction, and to contain albumen and much pus. Pus in acid urine may come from (a) the bladder in cystitis, due to infection by gonococcus, *B. coli*, and *B. tuberculosis*; or (b) from the kidney. Gonococcus and *B. coli* were eliminated, and as *B. tuberculosis* could not be found, it was in all probability not tubercular cystitis, as in that condition it is generally easy to detect the bacillus. This left the diagnosis of pus in the kidney. By von Pirquet's reaction the nature of the disease—viz., tuberculosis of the kidney or ordinary pyonephrosis—could have been made, but it was not tried in this case. The large amount of pus in the urine precluded the use of the cystoscope. The segregator was used with no definite result. As much pus was coming in the urine, and as the patient was not improving, after consultation with, and assisted by, Mr. M'Ardle, Mr. Fagan removed the kidney.

The patient, since the operation, has been doing well, and is putting on weight. The subsequent history Dr. O'Farrell hoped to bring before the Academy on a future occasion.

DR. CAHILL asked if the urine had been examined for sugar.

DR. STOKES asked if the cause of pyonephrosis had been found.

DR. O'FARRELL, in reply, said they had tried to get some organism in the pyonephrosis, but the cultures had failed to grow. No sugar was found in the hypernephroma case.

SECTION OF SURGERY.

President—JOHN LENTAIGNE, P.R.C.S.I.

Sectional Secretary—A. J. BLAYNEY, F.R.C.S.I.

Friday, April 22, 1910.

THE PRESIDENT in the Chair.

Nephrectomy.

DR. R. ATKINSON STONEY read an account of two recent cases of nephrectomy. The first case was that of a man who was thrown from his bicycle on to his right shoulder; he was rendered unconscious for a few minutes, but was then able to go home. He remained quietly in bed for about a fortnight suffering from a certain amount of pain in the right side, but it was not till he got up and began to go about that he first noticed blood in the urine. He then came to hospital, where he was kept under observation for three weeks. During this time he continued to pass large quantities of blood in the urine; this blood was found by Suys' segregator to come from the right side. At the operation the kidney was found to be torn almost in two at the hilum, and the lower half was in a state of pulp. Owing to adhesions formed to the peritoneum and surrounding parts, the operation was rendered extremely difficult. The second case was one of a girl who had been passing blood and tubercle bacilli in the urine for over six months. The urine was segregated by Suys' segregator on two occasions, and both times the urine from the right side was normal, that from the left contained blood, pus, and tubercle bacilli. At the operation the kidney was found to contain a small cavity (about one dram of capacity) in the upper half, representing the base of one of the pyramids. Under the microscope the walls of this cavity showed general round-celled infiltration and masses of red cells, but no definite tubercles. No blood, pus, or tubercle bacilli could be found after the operation, though several examinations of the urine were made. The author commented on the curious discrepancy between the symptoms and pathological findings in the two cases.

MR. SETON PRINGLE said he was particularly interested in the second case, as he had had two cases of a similar nature which

had rather puzzled him. In both cases the kidney was exposed, and in neither was he able to demonstrate tuberculosis. Both patients made perfect operative recoveries, but one was still—eighteen months after operation—complaining of pain and frequency, and passing some pus; and the other, seen two months ago, was practically the same as before operation, and was still passing purulent urine. It was important to know when to take away the kidney or when to leave it behind. He thought the cystoscope was a great advance on the segregator in dealing with such cases. He would suggest that in the case of the tubercular kidney it was the ureter that was chiefly involved. From the naked eye appearance the kidney would not be called tubercular. He would like to know what material Mr. Stoney used for ligature of the ureter and vessels. He personally had had trouble with silk coming out of the wound afterwards.

DR. STOKES said the first case seemed to be a very rare lesion, and the question was when they should operate. He wished to know if Mr. Stoney had any rule on the point. He had had trouble in using the segregator, the methylene blue which he injected returning down the other side. He would like to know if in the tubercular case there was any other focus in the body.

MR. C. A. BALL said he had met several cases which bore out Mr. Stoney's contentions in regard to his second case. He had found the segregator very useful in some cases, and had found it to work perfectly well, but if one used a cystoscope the segregator would rarely be required.

MR. W. S. HAUGHTON said the ruptured kidneys he had had to deal with generally showed hæmorrhage from the start. The weight of opinion seemed to be in favour of removal, and he would like to know if Mr. Stoney had ever tried suturing a ruptured kidney. He had once done so on a kidney which had three tears. He stitched with thick catgut, and drained with satisfactory results. He had once been compelled to leave in a kidney which was proved to be tubercular. There were three separate tubercular abscesses, but it was impossible on account of inflammatory adhesions to remove it. The case did fairly well, and the lady engaged in her household duties, but a little pus was still being discharged.

MR. J. LENTAIGNE said his experience had been that if there was a condition in which the treatment by injection of tuberculin was really valuable it was in tuberculosis of the genito-urinary

organs, especially the kidney. He had seen cases too ill for operation which improved to a wonderful extent although the injections were carried out without being controlled by the opsonic index. He did not think they ought to operate in such cases without giving tuberculin a trial.

MR. STONEY, in reply, said that against the idea of the ureter being involved was the fact that although he did not remove any portion of the ureter, there was a complete cessation of all symptoms from the time of the operation. His impression was that in removing the kidney manual pressure was put on the cavity, which was thus completely emptied, any tubercular material in it being driven out. He considered catgut the best material in such cases: he used the catgut prepared by the iodine method, and had always found it sterile. He had found the segregator absolutely successful in many cases. He thought the mistake in the use of it was in the position of the patient. If the patient was put sitting up in a gynæcological chair, so that the legs were nearly at right angles with the body, there was no possibility of urine passing from one side to the other, unless the bladder became over-distended. In most cases where there were symptoms of extensive injury, he thought the sooner operation was done the better. There were no other tubercular foci found in the body in the record case. The hæmaturia was apparently in many such cases one of the first and most important symptoms of tubercle in the kidney; and he thought they might take it for granted that in a young patient severe hæmaturia which was not affected or relieved by continued rest was almost pathognomonic of tubercle. He had not seen a case where suturing was possible, as his cases had always been so extensively injured that it was out of the question. The results which he had obtained with tuberculin had not been satisfactory: there seemed to be a great tendency to recurrence.

Coxa Valga, with Report of a Case associated with Ankylosis of both Hips.

MR. SETON PRINGLE read this paper. He first dealt with the ætiology, symptoms and treatment of this rare deformity, and laid stress on the importance of expert skiagraphy in diagnosis. He then read notes on an acquired case of the condition which had recently been under his care, and exhibited skiagrams and photographs taken before and after the performance of a sub-

trochanteric linear osteotomy on both femora. His case was complicated by ankylosis of both hips, due to arthritis caused by septic absorption from a large superficial burn, and yet the operation gave a quite satisfactory result.

MR. J. LENTAIGNE said the condition was a very rare one, though it had doubtless been met, but not recognised. Its discovery was entirely due to the use of radiography.

MR. STOKES inquired as to what joints were most commonly affected in cases of septic absorption.

MR. BLAYNEY said they all felt they knew very little about the subject, and for that reason there could be little in the way of discussion. His attention had been called to the fact that, in cases of congenital dislocation, the skiagrams seemed to show the neck as being a direct prolongation of the shaft.

MR. J. LENTAIGNE suggested that the ankylosis of the hip joints occurred first, and with continued growth the position of the hips would tend to produce the condition. There must be something tending on both sides more or less equally to produce the deformity.

MR. PRINGLE, in reply, said the arthritis did not select any special joints. He thought the position of the child had determined the site of the disease.

United Fracture of the Tibia treated by Wiring.

MR. WALTER C. STEVENSON reported this case. A skiagraph taken four weeks after the injury showed a spiral fracture three inches long in the lower third of the right tibia, and almost complete absence of bony callus. The fragments overlapped to the extent of one and a quarter inches, and the upper fragment was displaced outward the breadth of the bone, its lower end nearly piercing the skin. In spite of the mobility of the fragments, an attempt at reduction was only partially successful owing to the shortening of the muscles. The fracture was therefore exposed by a curved flap, which included the periosteum of the inner side of the tibia. When the broken surfaces were got into good apposition, after tenotomy of the tendo Achillis, both fragments were drilled in two places, about an inch apart. Wires passed through the drill holes were crossed and tightened in front, and then made to encircle the bone completely deep to the periosteum. The subsequent treatment consisted in an early use of the limb, supported by a removable

plaster splint which transmitted the weight of the body from the ground to the tuberosities of the tibia, and which permitted of the parts being massaged. The progress of the formation of bony callus and the good position of the fragments were verified by a series of skiagrams. Twenty-three days after the operation a fair amount of osseous tissue was apparent around the fracture. About a month later the patient, wearing a boot with lateral steels, was able to resume his occupation.

DR. HAYES said he had never seen better X-ray pictures. It seemed to him extraordinary that, having regard to the fact that the fibula was not broken except high up, and displacement was so little, more union was not attained. Of course the intervening muscle may have affected it. An X-ray photograph should be taken in every case where there was a suspicion of fracture, as fracture had been thus found in cases where there was no indication of it.

DR. HARVEY said he had a case of compound comminuted fracture in which he had operated ten days after the injury, and there was not the least trace of callus. He had used a plate instead of wiring, and he had noticed the other day, about three weeks after the operation, that the upper end of the lower fragment was more or less necrosed.

MR. GUNN said that the case before them was a typical one for wiring. He was not quite clear that the X-ray photograph was an unmitigated benefit if taken after the fracture was set. In some cases the amount of displacement might appear to be greater than it was in reality. He had found the bones in better apposition than the photograph showed.

THE SECRETARY said it had been pointed out that the greatest difficulty of reduction had been experienced in cases of spiral fracture; this was probably due to the entangling of the ends of the fibula.

MR. LENTAIGNE said the French method of treating fractures by massage was good enough where there was no deformity; but where there was much deformity, and no apparent attempt at union, undoubtedly something had to be done like what Mr. Stevenson had carried out. He had been rather afraid that some harmful result would come in cases where he had used wiring circularly round the bone, but no harm had ever followed. He had recently treated a girl's tibia by wire and plate. Suppuration followed, but he found she had a habit of running a hairpin

down under the dressing when the surface itched. He cut down and removed the wire, and the girl walked about at once. Even where suppuration did take place, they might have perfect union, and no necrosis, and very little trouble in removing the foreign body.

MR. STEVENSON, in reply, said he thought the callus ought to show in about a fortnight, or a little sooner, in an X-ray photograph.

A VISIT TO BATH.

THE members of the Irish Medical Schools' and Graduates' Association visited Bath on June 18th, 19th and 20th, and an attractive programme which had been arranged by the local profession for the entertainment of their guests was successfully carried out. On Saturday, June 18th, the Bath doctors welcomed the visitors at a garden party in the Institution Gardens, a charming spot, rich in the historical associations with which Bath is exceptionally endowed. The colonnade and fountain, where patients drink the hot mineral waters during the summer season, are in these grounds. Visits were paid to the bathing establishments, where demonstrations of the various methods of administering the waters were given, as well as to the Abbey, the Museum of Roman Antiquities and the Octagon, once a proprietary chapel where Magee, a famous Irishman himself, preached, but which is now used for the display of an extensive stock of antiques. Sir Alfred Keogh, K.C.B., presided at the Dinner of the Association at the Empire Hotel on Saturday evening, and after dinner the Mayor and Mayoress of Bath, Major Charles Simpson, J.P., M.C., and Miss Marshall gave a reception at the Pump-room. The Roman baths, unique amongst Roman antiquities in Western Europe, adjoin the fine old Pump-room, and it was in these classical precincts that the Mayor and Mayoress received their guests. On Sunday a special Service was held at the Abbey, and Solemn High Mass was celebrated at the Church of St. John the Evangelist. In the afternoon a motor excursion to Cheddar Cliffs and Caves was made.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, September 10, 1910.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended September 10, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 15.1 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, September 10, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality:—

TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks	TOWNS, &c.	Week ending				Aver- age Rate for 4 weeks
	Aug. 20	Aug. 27	Sept. 3	Sept. 10			Aug. 20	Aug. 27	Sept. 3	Sept. 10	
22 Town Districts	16.3	17.1	15.2	15.1	15.9	Lisburn	18.2	18.2	9.1	9.1	13.7
Armagh	34.4	6.9	20.6	13.7	18.9	Londonderry	14.4	10.8	14.4	20.4	15.0
Ballymena	9.6	9.6	23.9	—	10.8	Lurgan	13.3	8.9	4.4	17.7	11.1
Belfast	16.5	17.5	16.1	13.7	15.9	Newry	25.2	25.2	4.2	12.6	16.8
Clonmel	35.9	15.4	35.9	5.1	23.1	Newtown-ards	17.2	22.9	—	11.4	12.9
Cork	15.1	17.8	13.0	13.0	14.7	Portadown	10.3	10.3	5.2	15.5	10.3
Drogheda	20.4	28.6	20.4	16.3	21.4	Queenstown	26.4	6.6	19.8	6.6	14.9
Dublin (Reg. Area)	15.8	17.9	14.9	17.0	16.4	Sligo	19.2	4.8	9.6	—	8.4
Dundalk	23.9	8.0	12.0	27.9	17.9	Tralee	15.9	—	10.6	21.1	11.9
Galway	7.8	27.2	7.8	7.8	12.7	Waterford	17.5	19.5	13.6	23.4	18.5
Kilkenny	9.8	19.7	24.6	9.8	16.0	Wexford	32.7	9.3	28.0	9.3	19.8
Limerick	9.6	20.5	17.8	17.8	16.4						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, September 10, 1910, were equal to an annual rate of 1.9 per 1,000, the rates varying from 0.0 in twelve of the districts to 10.3 in Portadown—the 3 deaths from all causes for that district including 2 from measles. Among the 103 deaths from all causes for Belfast were 3 from measles, one from whooping-cough, and 13 from diarrhoeal diseases. Of the 19 deaths from all causes registered in Cork 2 were from diarrhoeal diseases. Among the 17 deaths from all causes registered in Londonderry were 2 from diarrhoeal diseases, and 2 deaths from diarrhoeal diseases are also included in the 12 deaths from all causes registered in Waterford.

DUBLIN REGISTRATION AREA.

In the Dublin Registration Area the births registered during the week ended Saturday, September 10, 1910, amounted to 260—142 boys and 118 girls; and the deaths to 141—81 males and 60 females.

DEATHS.

Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the Area, the death-rate was 17.0 per 1,000. The total deaths registered (131) represent a death-rate of 18.2 per 1,000 per annum. During the thirty-six weeks ending with Saturday, September 10, the death-rate averaged 21.2, and was 3.2 below the mean rate for the corresponding portions of the ten years 1900-1909.

Among the deaths from all causes registered, one death was from enteric fever, one was from scarlet fever; 3 were from whooping-cough, and 11—10 of the latter being of children under 5 years of age—were from diarrhoeal diseases (there were also 5 deaths from enteritis and 2 from gastro-enteritis at this age). In each of the 3 preceding weeks there had been deaths from scarlet fever, one, 2, and one; from enteric fever, 2, 0, and one; from whooping-cough, 2, 0, and 4, and from diarrhoeal diseases, 6, 17, and 12.

Included among 6 deaths from pneumonia (all forms) were one from lobar pneumonia, 2 from broncho-pneumonia, while 3 were attributed to *pneumonia* (not defined).

There were 36 deaths from all forms of tuberculous disease. This figure includes 23 deaths from tubercular phthisis (*phthisis*), 7 deaths from tubercular meningitis, and 6 deaths from other forms of the disease. In each of the 3 preceding weeks, deaths from all forms of tuberculous disease had been 24, 17, and 22.

Carcinoma caused the deaths of 5 persons, and there were 4 deaths from cancer (undefined).

The deaths of 2 infants were due to prematurity.

Of 9 deaths from diseases of the brain and nervous system, 3 were from *convulsions*. The latter figure includes the deaths of 2 infants under one year of age, and one child aged one year and 4 months.

Twenty-three deaths were from diseases of the heart and blood vessels, and 9 deaths were caused by bronchitis.

Two deaths were caused by accidental drowning, and one case of suicide was recorded.

In 2 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases comprise the death of one infant under one year old and the death of a person aged 70 years.

Thirty-eight of the persons whose deaths were registered during the week were under 5 years of age (27 being infants under one year, of whom 6 were under one month old) and 35 were aged 60 years and upwards, including 23 persons aged 70 and upwards, of whom 2 were octogenarians.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health

for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended September 10, 1910, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epidemic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Typhexia origin uncertain ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping cough	Cerebro-spinal Fever	Tubercular Phthisis (Pulmonary)	Total
City of Dublin	Aug. 20	-	*	*	8	-	-	5	-	1	11	6	-	-	-	15	46
	Aug. 27	-	*	*	5	-	-	12	-	1	9	7	-	*	-	20	54
	Sept. 3	-	*	*	15	-	-	11	-	-	6	4	-	*	-	12	44
	Sept. 10	-	*	*	9	-	-	9	-	-	9	12	-	*	-	8	51
Rathmines and Rathgar Urban District	Aug. 20	-	*	*	2	-	-	-	-	-	-	-	-	*	*	*	2
	Aug. 27	-	*	*	-	-	-	3	-	-	-	-	-	*	*	*	3
	Sept. 3	-	*	*	-	-	-	-	-	-	-	-	-	*	*	*	-
	Sept. 10	-	*	*	1	-	-	-	-	-	-	-	-	*	*	*	1
Pembroke Urban District	Aug. 20	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	2
	Aug. 27	-	-	-	1	-	-	-	-	-	1	1	-	3	-	-	6
	Sept. 3	-	1	1	-	-	-	1	-	-	1	-	-	-	-	-	4
	Sept. 10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blackrock Urban District	Aug. 20	-	*	*	-	-	-	-	-	-	-	-	-	*	-	*	-
	Aug. 27	-	*	*	-	-	-	-	-	-	-	-	-	*	-	*	-
	Sept. 3	-	*	*	-	-	-	-	-	-	-	-	-	*	-	*	-
	Sept. 10	-	*	*	1	-	-	-	-	-	-	-	-	*	-	*	1
Kingstown Urban District	Aug. 20	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Aug. 27	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Sept. 3	-	*	*	-	-	-	-	-	-	-	-	-	*	*	-	-
	Sept. 10	-	*	*	1	-	-	-	-	-	-	-	-	*	*	-	1
City of Belfast	Aug. 20	-	*	*	8	-	-	6	-	-	2	3	-	*	*	16	35
	Aug. 27	-	*	*	10	-	-	1	-	1	1	1	-	*	*	20	34
	Sept. 3	-	*	*	9	-	-	5	1	-	2	5	-	*	*	14	36
	Sept. 10	-	*	*	8	-	-	5	-	1	5	3	-	*	*	13	31

^a Continued Fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended September 10, 1910, three cases of measles were admitted to hospital and 3 cases remained under treatment at its close.

Seventeen cases of scarlet fever were admitted to hospital, 11 were discharged, there were 2 deaths, and 64 cases remained under treatment at the close of the week. This number is exclusive of 15 convalescents in Beneavin, Glasnevin, the Con-

valescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 66, 61, and 60, respectively.

One case of typhus remained under treatment in hospital at the close of the week.

Seven cases of diphtheria were admitted to hospital, 7 were discharged, and 45 patients remained under treatment at the close of the week. The cases in hospital at the close of the 3 preceding weeks numbered 31, 33, and 45, respectively.

Six cases of enteric fever were admitted to hospital during the week, 2 were discharged, and 42 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 28, 32, and 38.

In addition to the above-named diseases, 5 cases of pneumonia were admitted to hospital, and 12 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality of the week ended Saturday, September 10, in 77 large English towns, including London (in which the rate was 10.8), was equal to an average annual death-rate of 11.7 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 13.0 per 1,000, the rate for Glasgow being 12.9, and for Edinburgh 12.3.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended September 10. From this report it appears that of a total of 79 cases notified, 36 were of scarlet fever, 11 of phthisis, 21 of diphtheria, 5 of erysipelas, 5 of enteric fever, and one of puerperal fever.

Among the 330 cases of infectious diseases in hospital at the close of the week were 171 cases of scarlet fever, 56 of phthisis, 47 of diphtheria, 13 of measles, 5 of chicken-pox, 14 of enteric fever, 14 of whooping-cough, 4 of erysipelas, and 2 of puerperal fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of September, 1910.

Mean Height of Barometer, - - -	30.265 inches.
Maximal Height of Barometer (17th, at 9 a.m.),	30.522 ..
Minimal Height of Barometer (26th, at 4 p.m.),	29.707 ..
Mean Dry-bulb Temperature, - - -	54.8°.
Mean Wet-bulb Temperature, - - -	52.8°.
Mean Dew-point Temperature, - - -	51.0°.
Mean Elastic Force (Tension) of Aqueous Vapour	.376 inch.
Mean Humidity, - - -	87.5 per cent.
Highest Temperature in Shade (on 27th),	68.1°.
Lowest Temperature in Shade (on 20th),	41.8°.
Lowest Temperature on Grass (Radiation) (20th),	37.9°.
Mean Amount of Cloud, - - -	63.7 per cent.
Rainfall (on 10 days), - - -	.726 inch.
Greatest Daily Rainfall (on 10th),	.177 „
General Directions of Wind - - -	- N., N.W., N.E.

Remarks.

The outstanding features of September, 1910, were a high barometric pressure, a steady prevalence of winds from polar quarters, an undue cloudiness, and a very moderate—in many places a scanty—rainfall. In Dublin the barometer remained persistently above 30 inches until the 26th, and there were only 6 observations of pressure below that height out of a total of 60 made during the month. This high reading of the barometer depended on the existence and staying power of an anticyclone over Ireland and the ocean off our western shores. To the same cause the northerly winds of the month were due. Occasionally small shallow depressions formed within the anticyclonic area producing local rains. On the 14th such a depression developed over the Netherlands, and a heavy rainfall followed in the S.E. of England, London receiving half an inch of rain, the downpour being accompanied by thunder and lightning. A still deeper depression passed northwards across Ireland on the 26th, on and after which date the weather was broken, with variable cyclonic winds, the southerly breezes sending the thermometer up to 68°.

in Dublin on the 27th and to 75° in London on the 28th, when maxima of 70° or upwards were reported from nearly all parts of England and Wales. In contrast to these high temperatures, the thermometer fell at Llangammarch Wells, Brecknock, on the 21st, to 27° in the screen and 19° on the grass.

In Dublin the arithmetical mean temperature (55.8°) was 0.1° below the average (55.9°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 54.8° . In the forty-six years ending with 1910, September was coldest in 1886 and 1892 (M. T. = 53.0°), and warmest in 1865 (M. T. = 61.4°) and 1898 (M. T. = 60.2°). In 1909 the M. T. was 53.8° .

The mean height of the barometer was 30.265 inches, or 0.355 inch above the corrected average value for September—namely, 29.910 inches. The mercury rose to 30.522 inches at 9 a.m. of the 17th, and fell to 29.707 inches at 4 p.m. of the 26th. The observed range of atmospheric pressure was, therefore, 0.815 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 54.8° , or 3.3° below the value for August, 1910. Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* $\times .476$), the mean temperature was 55.5° , or 0.2° below the average mean temperature for September, calculated in the same way, in the thirty-five years, 1871–1905, inclusive (55.7°). The arithmetical mean of the maximal and minimal readings was 55.8° , compared with a thirty-five years' average of 55.9° . On the 27th the thermometer in the screen rose to 68.1° —wind, S.S.W.; on the 20th the temperature fell to 41.8° —wind, N.N.W. The minimum on the grass was 37.9° on the 20th.

The rainfall was .726 inch on 10 days. The average rainfall for September in the thirty-five years, 1871–1905, inclusive, was 2.210 inches, and the average number of rainy days was 15. In 1871 the rainfall was very large—4.048 inches on, however, only 13 days; in 1896 no less than 5.073 inches fell on 23 days, establishing a record rainfall for September. On the other hand, in 1865, only .056 inch was measured on but 3 days. In 1909 1.816 inches fell on 15 days.

High winds were noted on only one day, and never attained the force of a gale. A lunar halo was observed on the 19th, and solar halos were seen on the 20th and 27th. There was a faint aurora on the evening of the 29th.

The rainfall in Dublin during the nine months ending September

30th amounted to 25.108 inches on 159 days, compared with 18.493 inches on 134 days in 1909, 19.557 inches on 154 days in 1908, 17.140 inches on 153 days in 1907, 16.121 inches on 146 days in 1906, 19.266 inches on 145 days in 1905, 19.147 inches on 152 days in 1904, 25.269 inches on 174 days in 1903, 21.425 inches on 149 days in 1902, 18.070 inches on 124 days in 1901, only 10.968 inches on 112 days in 1887, and a thirty-five years' average of 20.160 inches on 146 days.

At the Normal Climatological Station in Trinity College, Dublin, the observer, Mr. William H. Clark, B.A., reports that the mean height of the barometer was 30.263 inches. The range of atmospheric pressure was between 30.522 inches at 9 a.m. of the 17th and 29.789 inches at 9 a.m. of the 26th. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 55.6°. The arithmetical mean of the daily maximal and minimal temperatures was 55.8°. The screened thermometers rose to 70.1° on the 27th, having fallen to 41.1° on the 26th. On the 30th the grass minimum was 35.9°. Rain fell on 10 days to the amount of .598 inch, the greatest fall in 24 hours being .135 inch on the 10th. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 90.2 hours, of which 10.2 hours occurred on the 3rd. The mean earth temperatures were—at 1 ft., 57.3°; at 4 ft., 56.7°. The one-foot thermometer ranged from 53.3° on the 2nd to 54.7° on the 23rd. The four-feet thermometer ranged from 57.4° on the 3rd, 4th and 8th to 55.6° on the 29th and 30th.

Mrs. Olive F. Symes reports that the rainfall at Druid Lodge, Killiney, Co. Dublin, was .60 inch on 7 days, the maximum being .21 inch on the 5th. The average September rainfall at Cloneevin-Killiney, in 24 years (1885-1908) was 1.961 inches on 12.9 days.

Mr. R. Cathcart Dobbs, J.P., reports that at Knockdolian, Greystones, Co. Wicklow, the rainfall was .660 inch on 7 days. The heaviest fall in 24 hours was .270 inch on the 10th. At Knockdolian the rainfall since January 1st, 1910, has been 26.540 inches on 130 days.

At Clonsilla, Greystones, Dr. W. Stewart Ross recorded a rainfall of 0.55 inch on only 6 days. The greatest rainfall in 24 hours was .25 inch on the 10th. Temperature was highest (70°)

on the 3rd, lowest (40°) on the 30th. The mean temperature was 55.2° , the mean maximum being 61.1° , the mean minimum, 49.3° .

Dr. J. T. Crowe reports that at the Royal National Hospital for Consumption for Ireland, Newcastle, Co. Wicklow, rain fell to the amount of .61 inch on only 6 days, the heaviest rainfall in 24 hours being .17 inch on the 10th. The screened thermometers rose to 67.5° on the 1st, and fell to 42.0° on the 30th. The mean maximum temperature was 60.2° , the mean minimum 48.9° , and the arithmetical mean temperature 54.6° .

At Manor Mill Lodge, Dundrum, Co. Dublin, Mr. George B. Edmondson recorded a rainfall of .79 inch on 11 days, the greatest fall in 24 hours being .23 inch on the 5th. The shaded thermometer rose to 73° on the 28th and fell to 41° on the 30th. The mean temperature in the shade was 55.3° .

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.23 inches on 6 days, the greatest fall in 24 hours being .615 inch on the 27th. The mean shade temperature was 53.9° , the extremes being—highest, 67° on the 1st; lowest, 38° on the 21st.

At Ardgillan Castle, Balbriggan, Co. Dublin, 210 feet above sea-level, Captain Edward Taylor, D.L., measured .77 inch of rain on 7 days, the rainfall being 1.32 inches below the average and the rain-days being 6 in defect. The total rainfall from January 1, amounts to 24.19 inches on 148 days. The rainfall is 3.61 inches and the rain-days are 11 in excess of the average. The maximal temperature in the shade was 65.8° on the 1st, the minimum was 40.7° on the 23rd.

At 21 Leeson Park, Dublin, Dr. Christopher Joynt, F.R.C.P.I., registered .845 inch of rain on 10 days, the greatest fall in 24 hours being .180 inch on the 28th.

At Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, Miss C. Violet Kirkpatrick recorded a rainfall of .60 inch on 8 days, the maximal fall in 24 hours being .26 inch on the 27th.

The Rev. Arthur Wilson, M.A., returns the rainfall at the Rectory, Dunmanway, Co. Cork, at 1.80 inches on only 5 days, the heaviest fall in 24 hours being 1.06 inches on the 25th. The rainfall was chiefly at night.

Mr. Wm. Miller states that in the City of Cork the rainfall was 1.28 inches on only 5 days, or 1.40 inches short of the average for September. The rainfall was greatest on the 27th, when 0.41

inch was measured. In the 9 months ended September 30 the rainfall was 26.58 inches on 158 days, or 0.23 inch and 20 days more than the average.

At Berreen, Kenmare, Co. Kerry, Mr. W. Holbrow registered a rainfall of 1.20 inches on 6 days, the heaviest fall in 24 hours being .51 inch on the 25th. Frost occurred on the 30th.

The rainfall recorded at the Ordnance Survey Office, Phoenix Park, was .585 inch on 10 days, the greatest measurement in 24 hours being .175 inch on the 27th. The total amount of sunshine at this station was 104.2 hours, the most registered on any one day being 10.5 hours on the 3rd.

PERISCOPE.

FLIES AND SUMMER DIARRHŒA.

IN a paper recently read before the British Medical Association Dr. J. H. Clements, of Beckenham, detailed the results of an investigation into 44 cases of summer diarrhœa in a northern town in the year 1909. These cases were notified from 42 houses, there being two sets of twins, and 40 of them occurring between August 9 and September 9. In several houses adults or older children suffered from the disease, but were not included in the count, which related only to children under 2 years. The secondary cases were probably infected from a common source, and not directly from the first case, for the same care was taken with the stools and linen as in the case of typhoid fever. Of the babies, 27 were under 12 months and 17 between 12 and 24 months. Of the former, 17 were under the age of 9 months, and in none of these was the baby fed entirely on the breast; 10 of them were fed wholly by bottle or artificial foods, and 7 were partly breast-fed and partly bottle-fed. The mother went out to work in 15 cases. In the great majority of the infected houses the yards were unpaved, and the conveniences were privy middens. In the few cases in which the house was provided with a water-closet there were privy middens in the adjoining yards or close by. Speaking generally, the cases occurred in parts of the town where the housing was of the poorest type, where the sanitary arrangements were least satisfactory, and where there was evidence of neglect and want of cleanliness within and without the house. A rough estimate was made of the number of flies in the infected

houses, and flies were collected from 15 cases for bacteriological examination. In every house where diarrhoea occurred there were numbers of flies, and some of the houses were infested with them. The examinations proved that there could be little doubt that the fly reared in a manure heap had its alimentary canal well stocked with whatever organisms the manure might contain, and these organisms probably continued to multiply during the adult life of the fly, and got deposited wherever it chanced to alight. Dr. Clements expressed the view that this fact alone should suffice to cause the fly to be regarded with suspicion, even if his legs were not so admirably constructed for picking up and carrying whatever material his unsavoury habits induced him to rest upon. During the period of fly prevalence some attempts were made to kill the flies in houses where they were the greatest nuisance. Sprays of various kinds were used, and formalin, both in the form of vapour and spray, was tried; the vapour did not kill the flies, and the spray was so unpleasant and irritating to the person using it that it had to be given up. A spray of izal proved to be more successful; it did not immediately kill the flies, but when sprayed over them they became stupefied and fell to the ground, where they could be swept or gathered up with a cloth and thrown into the fire. By the use of izal spray all the flies in several houses were killed. Dr. Clements warned his hearers that although this spraying cleared the house of flies for the time being the great aim must be to exclude flies altogether. Such a consummation is devoutly to be desired, but meanwhile most people will be glad to know of an effective palliative measure.

BRITISH MEDICAL ASSOCIATION MEETING, LONDON, 1910.

THE Annual Exhibition in connection with the British Medical Association Meeting recently held in London is of considerable interest to all who follow closely the latest developments in Physiological and Pharmaceutical research. The display of products introduced by Burroughs, Wellcome & Co., as a direct result of specialised research, indicated the valuable work which has been accomplished recently. "Soamin" (Sodium-Para-aminophenylarsonate) contains 22.8 per cent. of arsenium, and is readily soluble in water. It has less than 1/40 the toxicity of arsenious acid, and has been used with beneficial results in syphilis, trypanosomiasis and other protozoal diseases. On account of its reliability of action the ergot preparation

"Ernutin" continues to grow in favour, possessing as it does all the valuable principles of ergot, but without the uncertainty of action usually associated with that drug. "Nizin," a zinc salt of sulphanilic acid, forms a most valuable injection in acute gonorrhœa. It is antiseptic, and in the strengths of solution recommended for use is non-irritating and non-toxic. "Lodal" is an oxidation product of laudanoin, an alkaloid occurring in opium. It produces a rise in blood-pressure, whilst strengthening and slowing the heart beat. It produces tonic contraction of the uterus, and has been used with good results in cases of uterine hæmorrhage. The use of animal substances as medicines has steadily increased during recent years, and Messrs. Burroughs, Wellcome & Co. had a fine display of such medicaments. "Tabloid" Thyroid Gland, Pituitary (Infundibular) Extract, &c., are included in this branch of therapeutic remedies. The exhibit also included an extensive selection of the "Wellcome" Brand Serums, Tuberculins, and Vaccines. The list of these is more comprehensive than ever, several additions having been made. Among the more recent we noticed Coryza Vaccine, Influenza Vaccine, New Tuberculins (W.). These products are prepared under strictly scientific conditions, and are not allowed to be issued until they have passed the stringent tests for non-toxicity and sterility. In order to ensure absolute purity and potency in preparations for hypodermic injection, Messrs. Burroughs Wellcome & Co., issue under the "Vaporole" Brand a series of preparations enclosed in hermetically-sealed glass containers of special design. The exhibit also included "Tabloid" Medicine Cases and First Aid Outfits, "Tabloid" Hypodermic Cases, "Tabloid" Medicaments, "Tabloid" Pastilles, "Soloid" Analysis Equipments, "Kepler" Malt preparations, "Hazeline" Brand preparations, &c.

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PART I.

ORIGINAL COMMUNICATIONS.

ART. XVII.—*The Physiological Effects of Alcohol.*^a By
W. H. THOMPSON, M.D., Sc.D., F.R.C.S. Eng.,
Dipl. Ment. Dis., King's Professor of the Institutes of
Medicine in the School of Physic in Ireland, Trinity
College, Dublin.

THE subject of "Intemperance" is a comprehensive one, and needs limitation. From meaning "inobservance of the proper measure in regard to any action," it has come to signify "habitual over-indulgence in the use of intoxicating liquors." I have no doubt that this is the meaning attached almost instinctively by every one now to it. But let us remember that the term has not wholly lost its general significance, and that there are other forms of intemperance almost, if not quite, as blameworthy as alcoholic intemperance. And above all, let us aim at temperance in our consideration of the subject of intemperance, so that we may dispassionately and without bias ascertain the facts so far as we are able to review them.

^a Read at a Meeting of the Church of Ireland Conference held in Belfast, October 11th-14th, 1910.

And here let me premise at the outset that I am not speaking to you as a total abstainer.

The question of the influence of alcohol on the human organism is a very wide one. We could not possibly examine all its phases, even in the whole of the time allowed to the work of this meeting. We shall, therefore, have to select, and rapidly get, or try to get, to the kernel of things. I propose, therefore, to ask you to consider with me the following points:—

Can alcohol be in any sense regarded as a food, and if so, what are its specific effects and limitations?

What influence does alcohol exert on the organs which digest it, and on the digestion of other foods?

What effect does alcohol produce on the organs of circulation?

What action has alcohol on the brain and its functions?

Lastly, what is the dietetic effect of alcohol in small quantities?

To take the first inquiry—Is alcohol a food? What constitutes a food? A food is something which yields energy to the body. How does a food yield energy to the body? By being slowly oxidised or burnt within the system. It is in a similar, though much cruder way, that coal yields energy to the steam engine or petrol to the motor engine—viz., by being oxidised or burnt. The heat of burning in the former case is transformed through the medium of steam into mechanical work. Now we know that different coals have different heat values, and consequently different energy values. Similarly with foods: different kinds have different energy values. Fats and oils, for instance, have, weight for weight, more than double the energy value of sugar and starchy foods. But our capacity for using fats and oils is very limited, and consequently but a small proportion of the total energy required in the system is supplied by them.

We may now deal with alcohol. If it is oxidised or burnt in the body, in a similar way to ordinary foods we must consider it a food. But it is necessary to be very

sure before we can decide one way or the other. It is known that many things pass through the body without being changed or oxidised, and without liberating energy. Is this the case with alcohol or not? Well, possibly if we relied solely on the evidence of our olfactory organs we should say that alcohol comes out in vapour unchanged. But when accurate measurements are made it is found that the proportion of alcohol which leaves the body unchanged is extremely small: seldom above 2 or 3 per cent. of the quantity taken, and often not more than 1 per cent., even when the allowances exceed three ounces daily. By far the greater proportion is oxidised to carbon dioxide and water, just as occurs in the case of sugar and fat, or as in the case of coal or petrol in the engine. In passing, I may say that sugar itself is closely allied to an alcohol, though one of a much more complex nature than spirits of wine or ethyl alcohol, as we term the latter scientifically.

We must, therefore, accept it from this line of evidence, that alcohol has food properties, that it is oxidised in the body, and is capable of yielding energy to it. Moreover, its energy value is high—considerably higher than sugar, though not so high as fats. The relative values are—Sugar, 4; fat, 9; alcohol, 7.

But there is another touchstone wherewith to test the value of any substance as a food—namely, by ascertaining whether it can replace other articles in the dietary, such as starch, sugar, or fats? Can alcohol be utilised by the human body so as to save other elements of the food or its own tissues from being burnt or oxidised? The experimental investigation of this question is one requiring great technical skill, and the results of the earlier investigations are conflicting; but more recent experiments, carried out with painstaking care, have settled conclusively that alcohol does save other food substances, notably fat, from combustion; and therefore from this second point of view it must also be assigned nutrient properties. It is a well-known fact that the habitual use

of alcohol frequently promotes an accumulation of fat in the body. Part of the explanation of this is that the alcohol is oxidised, leaving the fat to be stored up.

We have, therefore, to take it as proven that alcohol is oxidised in the body, and yields energy to it. Further, it is able within limits to replace other non-nitrogenous foods, such as starch, sugar, and fats.

But admitting all this, as we are compelled to do from the scientific evidence, we have still to ask, Is it a desirable or suitable food? Can it be taken without injurious effects to the organs and tissues concerned with its digestion and utilisation in the human body?

This practically covers the ground of the second question asked at the outset, and in answering it we must keep to firm, unassailable ground. By this I mean that if our answer refers to the consumption of quantities that would produce any of the outward evidences of intemperance—or even to the habitual use of lesser quantities in the case of many individuals—then it is undoubted that the organs concerned with its absorption become impaired.

It is also quite certain that the resistance of the body generally to the inroads of disease is lowered. Hospital records infallibly show this, particularly in regard to pneumonia and to cholera in countries where it is prevalent.

I shall return before closing my remarks to the dietetic use of alcohol in strictly moderate quantities. Meanwhile I must rapidly touch upon its effects on the heart and circulation, and here again we must dispassionately look at both sides. Very reliable investigations have been carried out, which show that in extremely small quantities—not exceeding 0.2 per cent. of the circulating blood—it exerts a nutrient and sustaining effect upon the heart. Medicinally administered in certain cases it also promotes the circulation and nourishes a flagging heart, so that, so far as can be judged, recovery has been promoted or life saved by its use. On the other hand, if the

dose exceeds a very small percentage, it rapidly becomes injurious, and when it reaches a strength of 0.5 per cent. of the circulating blood the substance acts as a poison.

It may be interesting to state that there is a hypothesis—and not an improbable one—based on evidence, to which I need not refer, that sugar and starches pass through various transformations before being utilised to furnish energy to the muscles and other organs of the body, and that the final stage immediately before oxidation is alcohol.

But, however this may be—and so long as it is an hypothesis we need not seriously consider it—we do know for certain, that the prolonged use of alcohol tends to bring about structural changes in the heart and blood vessels, which impair the circulation and shorten life.

Now let us turn to its effects on the brain. Alcohol is commonly regarded as a stimulant to the functions of the brain, but in animals it acts as a pure depressant, and in man it is, perhaps, not sufficiently recognised how often this, and this alone, is the effect produced.

Those cases in which apparently the opposite effect occurs—namely, stimulation, as shown by exhilaration and loquacity—attract more attention, but are probably less frequent.

One of the unquestioned effects of alcohol on the brain is that it removes restraint, so that the more recently acquired and higher mental faculties are for the time being blotted out, whereas the mechanical and more automatic functions remain intact. Hence the saying, *in vino veritas*, the inward man being revealed. This suppression of certain functions, beginning with the highest, is the feature of the effect of alcohol on the brain. That is to say, it is probably not an excitant at all, but simply a depressant, and acts by removing the bonds of restraint.

The depressing effect of alcohol is also shown by the fact that it causes an earlier onset of mental fatigue. This has been tested in various ways; for example, in

compositors by the amount of work done, and the proportion of mistakes made, as shown on days after alcohol had been taken overnight as compared with normal days. Learning by heart, and the performance of exercises in addition and multiplication, were also experimentally proved to be more difficult after alcohol than before. Attention and accuracy of aim were likewise impaired as shown by the number of failures to touch in succession a series of dots on a roll of paper rapidly drawn through a slit before the observer.

We come lastly to the dietetic use of alcohol. This is not a subject for laboratory investigations, since it requires prolonged observations. There are, however, certain cases in which alcohol increases the taste for food, and in small quantities promotes digestion. It also appears to be true that some people can take alcohol in moderate quantities and diluted condition, such as in the form of light wines, beer, cider, and similar beverages, without apparent detriment, for the greater part of their lives. But people vary very much in this respect. While some can do so, others cannot: while some can remain content with small quantities, others cannot remain so, and herein lies one of the great drawbacks to the habitual use of alcohol. One thing, however, appears to be certain—namely, that alcohol is not a necessary part of the dietary of any one, nor even is it necessary as a remedial measure in the hands of the physician.

Before closing I should like to relate an incident which I witnessed during the past summer, and which may serve to point the moral of my remarks. On a somewhat similar occasion to this, a Continental surgeon of world-wide reputation, speaking on the subject of the use of alcohol, said, to the momentary surprise of every one:—“I am a great believer in alcohol. I use large quantities of it, and I attribute my success in great measure to this fact: but I always use it externally, and I never use it internally.”

ART. XVIII.—*Some Tendencies of Modern Research in Veterinary and Human Medicine.*^a By E. J. McWEENEY, M.A., M.D., D.P.H., F.R.C.P.I.; Professor of Pathology and Bacteriology, University College, Dublin.

At the beginning of this Address I desire to say that I feel deeply honoured by the flattering task that has been laid upon me, in being asked to speak to you here to-day, and to occupy, however unworthily, the chair so ably filled last year by Professor Theiler, whose researches into the parasitism of Trypanosomes and Spirilla have made his name celebrated wherever veterinary science is taught and honoured.

With regard to your splendid College, I venture to think that its establishment is one of the most important accessions that have been made within recent years to the intellectual armoury of Ireland. The importance of your College is two-fold. In the first place, by teaching the best methods of diagnosis and treatment as applied to diseases of cattle and horses, it exercises a favourable influence on one of Ireland's few remaining industries. In the second place, the College is a centre or focus from which emanates that subtle influence of scientific habits of thought and experimental methods of work to which is due all progress in human and veterinary Medicine. The establishment of a great College such as this, with its spacious lecture theatres, operating rooms and laboratories, could not have been accomplished without the expenditure of a vast amount of energy, steadily and perseveringly directed to the object in view. The co-operation of public bodies had to be secured, and here I would fain acknowledge the support accorded to the nascent institution by the Department of Agriculture and Technical Instruction, as well as by the Royal Dublin Society. Amongst the men who devoted their time and energies unsparingly to the idea which we see materially realised here to-day, my former teacher

^a An Address delivered at the opening of the Eleventh Session of the Royal Veterinary College of Ireland, October 4th, 1910.

and present colleague in the National University, Sir Christopher Nixon, occupies a prominent place, and I am sure we are all pleased to see him here to-day occupying the Presidential Chair, to which his labours on behalf of the College have so well entitled him. But it is not enough to establish a College. If its career is to be a success, its fortunes must be entrusted to a man of energy, who is willing to work and able to stimulate others to do so—to a man of sound judgment, and scientific attainment, who can distinguish the channels along which progress is being made, and can direct into them his teaching and his research; a man of enthusiasm, eager to accomplish something definite—to stake out, as it were, some new claim, out of that vast Unknown in which we are immersed—a claim which, however arid it may appear at first sight, may nevertheless prove to contain material of priceless worth for the warding off and stamping out of preventable disease. It is not always that the right man is found in the right place. But in this institution we find the leadership entrusted to a man who possesses, in an eminent degree, as those who have the privilege of knowing him can testify, the very qualities which I have just enumerated. Need I say that I refer to our friend, Professor Mettam? The mention of his name leads me up at once to the subject to which I have decided to devote these opening remarks. For he is himself an excellent representative, a very embodiment, of the modern tendencies in Veterinary Medicine to which I desire, for a few brief moments, to ask your attention.

The first of these tendencies to which I would refer is the growing importance attached to the ætiological factor in the study of disease, or, to put it in plainer language, the desire to find the cause. Formerly it was otherwise. People tried the effect of animal, herbal and mineral substances, often of the most fanciful and disgusting nature, upon disease, without making any effort to define the morbid condition or ascertain the anatomical and functional abnormalities of which it consisted.

As an example of the kind of remedy still in use as recently

as the 18th century, I take the following from the *Histoire des Drogues, Simples, et Composés, par le Sieur Pomet, Marchand Epicier et Droguiste*. Paris, 1735 (vol. ii, p. 99).—"English druggists, more especially in London, still sell human skulls upon which there is a little green moss called *Usnea humana*. This grows to the height of 2 to 3 lines on the skulls of persons who have been hanged, and left for a long time on the gibbet The English druggists import these skulls from Ireland where it is customary to leave the bodies of executed persons hanging on the gibbet till they fall in pieces This *Usnea* is used in the preparation of the *Onguent Sympathique* or *Constellé* which Crollius has described in his *Royal Chymie*, and much lauded as a cure for the falling sickness." Under the head of *Crapaudine* or Toad-stone, M. Pomet informs us that many would class it as a precious gem on account of its rarity and medicinal virtues, being proper to resist all sorts of poisons. In order to test whether such a stone is genuine, it should be shown to a toad, when, if he raises himself up, as though to jump on it and carry it away, that is an evident sign that it is genuine." The author goes on to describe the virtues of the volatile salt, oil and powder of *wood-lice*. Such methods of treatment did not lead very far, nor accomplish very much, and were very properly satirised by Butler—

"For men are born to worse distresses
By taking physic than diseases
And therefore commonly recover
As soon as doctors give them over."

(*Hudibras*).

The first great successes achieved by the ætiological mode of inquiry were accomplished in the field of work to the cultivation of which this College is devoted—the diseases of animals—and may properly be regarded as triumphs of veterinary science. The diseases to which I refer are—anthrax, chicken cholera, rabies (hydrophobia) and tuberculosis. In the year 1872 Robert Koch, then in his twenty-ninth year, and full of working-power and scientific enthusiasm, took up duty as *Kreisphysicus* (district medical officer) at Wollstein in East

Prussia. At that time the prevailing view with regard to infection was that it was a sort of exhalation from damp soil or from marshes—a miasmatic influence, which it was difficult or impossible to avoid. Under the influence of Pasteur's immortal researches on the cause of fermentation and putrefaction, Koch inclined to the view that infective disease might prove to be something similar to these processes. He sought confirmation for his view in the study of anthrax or splenic fever, a disease of cattle and sheep then very prevalent in his district. As a specimen of the theories prevailing about that time, as to the nature of this malady, I may quote the hypothesis put forward by the French veterinarian Delafond, who held that anthrax in sheep was due to "an excess of blood circulating in the vessels." Concluding that this was caused by a rich nitrogenous pasturage, he advised sheep raisers, as a prophylactic measure, to put the animals on short rations!

So far back as 1849, rod-shaped bodies, or bacilli as we now call them, had been seen in the blood of animals affected with anthrax by Pollender in Germany and by Davaine and Rayer in France. Brauell, moreover, had performed successful inoculation experiments with the blood of infected animals. But the precise *role* of the bacillus was not clear. Some took it for a sort of crystal, whilst others denied its importance, and relied upon the fact that the disease could be reproduced by the inoculation of blood in which no bacilli could be detected. It was at this point that Koch stepped in and showed that the rod-shaped structures could be grown outside the body in the aqueous humour of the ox's eye; that by repeated transfer from one tube to another all trace of the blood could be got rid of, so that nothing remained in the cultures save the bacilli; and that such a pure culture would, if inoculated into a susceptible animal, infallibly reproduce the disease, anthrax, and no other. Moreover, Koch succeeded in showing that the samples of blood which appeared to contain no rod-like bacilli, and yet proved virulent, did contain oval, highly refractive granules which were derived from the rods, and were in fact their seeds or spores. He also showed that an

abundant supply of oxygen is essential for the formation of these spores, and he accounted for the continual cropping up of fresh cases in certain localities, by the persistence of these spores in the soil of the fields and the dust of the stables, long after the bacilli that had given rise to them had disappeared. These observations threw a flood of light upon the relations of the minute parasitic organisms known as bacteria to the diseases of higher animals. They were embodied by Koch in a short paper published in Cohn's *Beiträge* as early as 1877, and may be said to have founded the science of Bacteriology. The paper at once attracted the highest recognition, and, within three years, the writer found his sphere of activity transferred from a remote country village to the Imperial German Public Health Office, which he entered with the title of Government Councillor (*Regierungsrath*) in 1880. What interests us here to-day, however, from our present point of view, is the fact that these epoch-making observations were made on a disease which is comparatively rare in man, although one of the commonest and most fatal amongst our flocks and herds. Few discoveries have more profoundly influenced the development of a science than this one of Koch's that disease-germs can be cultivated outside the body and made to reproduce the disease on re-inoculation, influenced that of Medicine; and, as I have already pointed out, it was made on veterinary territory. For its maker the discovery secured recognition, laboratory facilities, and the co-operation of able fellow-workers like Gaffky and Löffler, who devoted themselves to the study of typhoid fever and diphtheria, while Koch turned his attention to that of tuberculosis, and soon forced that most widespread of diseases to yield up its secrets. Meanwhile, by the aid of the weapons of precision which Koch had invented in the shape of gelatinised media for the separation and growth of bacteria outside the body, the micro-organisms that cause wound-infection were being successfully studied by Alexander Ogston of Aberdeen, Fehleisen of Berlin, and Rosenbach of Wiesbaden. It was by these researches that we gained the knowledge as to the true cause of suppuration, which was so ably utilised

by Lister in support of those antiseptic methods which he had introduced some years previously and which have since revolutionised surgery.

At the present time, owing to the successful use of the weapons forged by Koch (whose death in June last we all regret), practically all diseases produced by micro-parasites of bacterial nature have been forced to yield up their secrets, and the germs have been grown outside the body in pure cultivation. Up to quite lately, leprosy formed a striking exception to this statement. Although this is essentially a disease of mankind, I cannot forbear from alluding to the brilliant discovery made within the past twelve months by Clegg of the Philippine Islands and Duval, of New Orleans—viz., that the leprosy bacillus can be cultivated. Hitherto all attempts to grow it had failed, a fact all the more remarkable because its near relation, the tubercle bacillus, can be grown readily, once the proper conditions are supplied, and also because the leprosy germ occurs in such prodigious numbers in the lesions it produces that the masses are, after suitable staining, visible to the naked eye. It would appear that, for growth to occur, the bacillus must, in accordance with its intra-cellular habitat, be provided with the end-products of cell-metabolism. Clegg accomplished this by growing it in company with an amœboid organism, whilst Duval, by adding certain chemical products of metabolism—leucin or cystin—to the nutrient medium, which consisted of slices of banana (selected on account of its oxidative power), also succeeded in obtaining cultures. He found that the only animal capable of being infected was the Japanese dancing mouse, and in this little animal he produced, as the result of the inoculation of pure cultures, what he regards as typical leprosy nodules.

After this digression we will re-enter the main stream of scientific development at the point where we left it—viz., about 1880—when the Listerian system of surgery, based upon the discovery and pure cultivation of the microbes of wound-infection, was established on a secure basis of observed fact. From this same period date two other most important

discoveries—both made on veterinary ground, and both fraught with momentous influence on the subsequent development of medical science. Both are due to the genius of Pasteur and his fellow-workers, Toussaint, Thuillier and others, who were mostly veterinarians. The first of these discoveries was that animals could be protected against naturally acquired attacks of infectious disease by previous inoculation with the bacilli of the disease in a partly devitalised, or, to use Pasteur's expression, an "attenuated" form. This proceeding, which is called "vaccination," was first worked out in connection with anthrax. The other discovery was that many of the symptoms of a disease could be produced in animals by the injection, not of the bacilli themselves, but of the culture-fluid in which they had been grown, freed from the bacilli by a process of filtration through porcelain, but containing the poisons they produce. This was first established in connection with Pasteur's investigation of chicken-cholera. Both of these discoveries are of primal importance because they mark the beginning of tendencies, because they are the fountain-heads of streams of thought and activity which are still flowing strongly at the present day, and are revolutionising the practice of human and veterinary Medicine. True, the proceeding of vaccination dates far back into the pre-bacteriological period—back to Jenner, who, in 1798, introduced the practice of protecting against small-pox by inoculation with material taken from pustules on the cow. But Jenner was not conscious of the real nature of the material he was introducing; he did not know, as we do now, that Cow-pox is only Small-pox robbed of its virulence by passage through the system of the bovine animal. Pasteur was the first to deliberately bring about immunity by the inoculation of artificially weakened disease-germs. With this object he grew the anthrax bacilli at a temperature of 43° C.—five degrees higher than they were accustomed to—and after two vaccinations with such weakened bacilli he found that cattle and sheep were immune against inoculation with fully virulent material which killed the control animals.

Other methods of artificially weakening or strengthening

micro-organisms for immunisation purposes have likewise been worked out on veterinary ground. To quote a couple of examples, Pasteur and Thuillier found that, by repeated passage through the rabbit, the bacillus of swine-erysipelas lost much of its virulence. To Pasteur also belongs the immense credit of showing that the virus of rabies can be intensified by repeated passage through the rabbit, and attenuated by the simple plan of drying it over potash at constant temperatures. In this way he succeeded in preparing a series of vaccines for this disease so graduated as to be perfectly safe, yet so rapid in their effects as to forestall the development of the naturally contracted disease. The mortality amongst persons bitten by animals actually proved to be rabid has thus been diminished from somewhere about 16 per cent. to a fraction of 1 per cent., and, during the twenty years the treatment has been in use, several thousands of human beings have thus been saved from a most agonising death.

To trace out in detail the subsequent developments of the doctrine of immunity and their practical applications to diagnosis, prophylaxis, and treatment would be a fascinating task, but would take me far beyond the limits of an Inaugural Address. I must content myself with sketching them in the broadest outline.

As regards *diagnosis*, we now possess methods based upon the recognition in the blood of the patient, of substances specifically antagonistic to the micro-organism of the disease which is suspected. Such substances may manifest their presence by causing the organisms to become agglutinated (as in the Widal reaction for typhoid fever) or by dissolving them, or, again, by rendering them capable of being taken up and digested by the leucocytes (as in Wright's opsonic diagnosis). Or, again, the anti-substances may be demonstrated by their power of combining with the infective material that gave rise to them, and in the act of combination, fixing or rendering inert a ferment called "complement" which is present in fresh serum, and the fixation or non-fixation of which can be ascertained by the addition of an incomplete hæmolytic system. Such is the now famous Wassermann reaction, one

of the most recent refinements of modern diagnosis, by the aid of which the true nature and relations of some of the most serious forms of human disease have been clearly demonstrated. A still more recent and more delicate reaction is that based on the phenomenon of *Anaphylaxis* or heightened susceptibility to foreign albumen. By its means one can demonstrate quantities of the specific material as small as one-millionth of a gram. Nor have these diagnostic procedures been limited to human disease. They have been found of great value in several of those with which you will have to deal in your veterinary practice—notably in glanders. Based upon a different, yet an allied, principle is the injection of tuberculin as a means of diagnosing tuberculosis. This is a procedure which you will be frequently called upon to perform, and which constitutes one of the most valuable diagnostic weapons of precision which Bacteriology has placed in the hands of the veterinary profession.

Adverting for a moment to the applications of the theory of immunity to actual *treatment*, we have witnessed in recent years the success of the anti-toxin treatment of diphtheria evolved by the genius of v. Behring in Germany, and of Roux in France. More recently still we have seen here in Ireland the success with which cases of cerebro-spinal meningitis, the dreaded “spotted fever,” have been treated in Belfast and Dublin with an anti-serum prepared by Professor Flexner, of the Rockefeller Institute for Experimental Medicine in New York. These methods are examples of what is called “passive immunisation,” which is brought about by the transference of protective or curative substances ready-made from animals to man. But there is another sort of immunity—the “active” form—in which the human being or animal which it is desired to protect or to cure, is forced to produce for itself the necessary “anti” substances by a series of injections of the micro-organism against which protection is desired.

The organisms are not, however, injected nowadays in the living, though attenuated state, in which Pasteur employed them, but are previously killed. In accordance with a law

that has recently been formulated, the body reacts to the injection of foreign albumen by the production of bodies specifically antagonistic to the sort of albumen introduced. Working along these lines, it has been found possible to evoke a high degree of artificial immunity to several of the leading infectious diseases, amongst which I may mention those terrible scourges of Eastern origin, Cholera and Plague, and our own more or less endemic pest, Typhoid Fever, which has shown itself a more formidable danger to armies in the field than the most modern weapons of war. All that is now needed is the means of making such artificially induced immunity permanent, and that, no doubt, will soon be achieved. The curative effect of what are called auto-vaccines—that is of killed cultures of the actual infecting organism isolated from the patient—has been proved to demonstration by Wright and his school in the case of chronic infections with the micro-organisms of suppuration and tuberculosis, and constitutes one of the greatest practical advances that have ever been made in the treatment of microbic diseases. The effects of such vaccine treatment on suitable cases are surprisingly good, and by Wright's method of opsonic index determination we are in a position to accurately gauge the effect of each dose and select the most suitable intervals for the injections.

In addition to these *curative* procedures, bacteriology has taught us much regarding the paths trodden by disease germs on their way from victim to victim, and has thus enabled us to block up or obstruct these channels of infection. In this way the study of each important transmissible malady has evolved its own system of Prophylaxis—of specialised preventive measures. In the case of Cholera and Typhoid, for example, we have learnt how to safeguard our water supplies from becoming infected with the germs. In Typhoid, again, and to some extent in Diphtheria, Cerebro-spinal Fever and other diseases, we have been taught to recognise and isolate that fertile source of previously mysterious outbreaks—the apparently healthy “bacillus-carrier.” In the case of Plague, we have learnt the rôle played by the rat and its parasites in the transmission of the disease germs. In Tuberculosis we

disinfect the sputum. In the case of Yellow Fever and Malaria we wage war on the mosquito; in the Texas fever of cattle, on the tick; in Typhus and Relapsing Fevers, on a parasite, which shall, at any rate before this audience, be nameless. Thanks to such discoveries, we can now attack these enemies of our race at once in front and rear. By the new vaccinal methods we can immunise the endangered individual. By the new hygienic methods we can cut off the supply of the germs by which he is endangered. By combining the two classes of procedure we can confidently look forward to so great a diminution of mortality from these world-scourges, that they will soon be robbed of their terrors for the human race. The interlocking series of discoveries from which this desirable result will most undoubtedly flow has thus in these few broad outlines been traced down from work done by Pasteur and Koch in the domain which you are here to cultivate—that of Veterinary Medicine.

But there is another way, equally interesting and much more mysterious, in which discoveries first made upon veterinary territory are beginning to influence human pathology. I refer to the discovery of disease-producing organisms so small that even our most powerful microscopes fail to reveal them. The first disease definitely known to be caused by an “ultra-microscopic” disease germ was the infectious Pleuro-pneumonia of cattle, and the discovery was made some twelve years ago by that most brilliant of veterinary bacteriologists, M. Nocard. To several of my audience here to-day the name of M. Nocard must be familiar, for at an early period in the history of this College he came here at the instance of the Department of Agriculture to conduct an investigation into a disease of calves, at that time raging in the south of Ireland.

M. Nocard’s study of Pleuro-pneumonia showed that the disease could be readily transmitted by the injection of the perfectly clear amber-coloured fluid which collects between the septa of the diseased lung. In this fluid no micro-organism of any kind could be detected, and none could be grown by the ordinary methods. By the device of inseminating a few cubic centimetres of sterile broth with a drop of the infective

serum and introducing the liquid, enclosed in a collodium capsule, into the peritoneal cavity of a rabbit, Nocard succeeded in obtaining a growth which revealed itself by gradually increasing cloudiness of the liquid. A trace of the cloudy fluid transferred to another such capsule induced a similar turbidity, and the liquids proved infective. Ultimately Nocard succeeded in obtaining pure cultures of his organism on solid media. So minute were the individual germs that the highest powers of the microscope failed to reveal their exact shape. Moreover, Nocard found that the liquid containing these germs retained its infectivity after passing through the Berkefeld filter known as F., which stops the smallest bacterial organisms. The *materies morbi* was thus proved to be smaller than these. The germ of Pleuropneumonia lies just over the borderland of microscopic visibility, which owing to the wave length of white light does not reach below a quarter of a micron—about the hundred-thousandth part of an inch. Nocard was therefore unable to do more than glimpse the organisms he had discovered. But since his lamented death, science has been advancing, and within the last six months the application of the ultra-microscope in combination with dark-ground illumination has revealed the unexpected fact that this excessively minute disease germ possesses an extraordinary variety and complexity of shape, consisting of tiny spheres, rods and curved branching filaments. We are still in doubt how to class this virus amongst living things. It does not, however, stand alone. Several other diseases of our domestic animals have within the past few years been proved to be caused by similar “filter-passing” or ultra-microscopic germs. I will instance Rinderpest, South African horse-sickness, Foot and Mouth disease, and the infectious Leukæmia of fowls. It would also appear that the virus of Vaccinia and that of Hydrophobia are, at any rate in certain stages of their development, of ultra-microscopic dimensions. In human pathology, some most interesting discoveries have also been made in this mysterious realm which we are just beginning to penetrate. The mosquito-borne germ of Yellow Fever is certainly ultra-microscopic.

Only this present year Flexner and Lewis, of the Rockefeller Institute, have shown that infantile paralysis (acute anterior poliomyelitis) is caused by a micro-organism lying below the range of microscopic visibility, and in all probability transmissible, like that of spotted fever, from the mucous membrane of the throat. The behaviour of these "filter-passers" suggests that they are of protozoal rather than of bacterial nature. But their very existence affords a glimpse into hitherto unsuspected depths of minuteness just as our telescopes enable us to penetrate into the unplumbed recesses of interstellar immensity. Our minds fail to grasp how the capacity for life, with all its functions and hereditary qualities, can exist in beings so small that they can be composed only of very few molecules of the size and complexity which we are accustomed to associate with those of living protoplasm.

With regard to inorganic substances, Richet has recently shown that distinct effects may be produced by inconceivably minute quantities. A quantity of vanadium as small as the ten-millionth of a milligram has been shown to exercise a distinct influence on the amount of lactic acid produced in a litre of fermenting fluid, and must therefore influence in some way each of the hundred millions of millions of ferment-cells contained in the liquid. How much vanadium acts on each individual cell?

Another interesting fact is that some of these "filter-passing" parasites, although themselves invisible, nevertheless produce by their presence visible alterations in the structure of their host. These changes take the form of peculiar intra-cellular, sometimes intra-nuclear, appearances which are liable to be mistaken for the actual parasite itself. Such, for example, are the bodies which Professor Negri, of Pavia, discovered seven years ago in certain cells of the brain of animals that had died of Hydrophobia. These Negri bodies are admittedly a distinctive sign of that disease, and their discovery constitutes a most important practical advance. Their demonstration enables us to recognise Rabies "right away" (if I may use an Americanism) instead of having to perform troublesome inoculation experiments, and await their

result before arriving at so momentous a diagnosis. Although their discoverer regards these intra-cellular bodies as Protozoa, the prevailing tendency of the most recent work is to make them out to be areas where the cell protoplasm is altered as the result of the presence of an extremely minute parasite, and to regard certain almost invisible granules found in the affected cells as the real micro-organism. With regard to the causation of Small-pox and Vaccinia, our present position is much the same. Intra-cellular bodies, admittedly peculiar to the disease, have been described by Guarnieri as parasites, and classed with the Protozoa under the name of *Cytoryctes vaccinæ*. A complicated life-cycle has been ascribed to the supposed parasite by the American workers, Councilman and Calkins. But the prevailing tendency is to regard these bodies as degenerative changes of a special kind rather than as the actual disease-germ, which is in all probability of ultra-microscopic dimensions.

The existence of parasites too small to be seen with our most powerful microscopes introduces into the study of infectious diseases a complication which first made itself felt in connection with a malady which greatly concerns you here—swine fever. The earlier work done on the causation of this epizootic tended to ascribe its production to a bacillus of the typho-coli group, affecting chiefly the lymphoid tissue of the intestinal tract in much the same way as the typhoid bacillus does in the human subject. More recently, however, this bacillus has been detected by Uhlenhuth in the intestinal tract of 8 per cent. of *healthy* swine, and its *role* has now been reduced to that of producing the characteristic intestinal lesions in animals the vitality of which has been lowered by the *real* virus of swine fever, which is a “filter-passing” ultra-microscopic disease-germ. May it not well be that such associations or symbiotic relationships of visible and cultivable bacteria with invisible and uncultivable viruses of unknown nature may account for hitherto unexplained phenomena of human disease? Thus, for example, the blood of Typhus patients is very often found to agglutinate the Typhoid bacillus, so that the Widal test as a means of distinguishing the two

diseases not infrequently breaks down—a fact of which I have recently had personal experience. This can best be accounted for on the supposition that, under the influence of the hitherto unseen parasite of Typhus, the body-resistance is lowered, intestinal organisms of the typho-coli group effect a lodgment in the system, and so evoke the production of their characteristic anti-bodies. In this connection a highly interesting observation has just been made by Drs. Petrie and O'Brien at the Lister Institute of Preventive Medicine. They studied the causation of a severe epizoötic amongst their experimental guinea-pigs, and found in the vast majority of cases a disease-germ present which was identical with that of swine fever. This organism was highly pathogenic when injected into guinea-pigs, but of low virulence when given with food, whilst it did not spread at all by mere contact in the same cage. In other words, the disease produced by the injection of the pure cultures was not infective in the same sense as the spontaneous outbreak. Further investigation showed that sterile filtrates of the organs of guinea pigs from the affected stock frequently proved fatal on injection, and the authors are clearly of opinion that the primary factor in the transmission of this epizoötic malady is an ultra-microscopic or “filter-passing” virus. By the aid of the optical device known as dark-ground illumination they could see in the filtered, but infective, fluids, minutest particles dancing about in active Brownian movement, and these they consider provisionally to be the real cause of the malady.

My original intention was to trace out the marvellous development of our knowledge as to the *role* of insects in the propagation of human and animal disease. But time will not permit me to dwell upon this fascinating theme, and I can do no more now than state in the baldest terms the actual achievements and the future outlook. We know that Plague is spread by the bites of rat-fleas containing the specific bacillus. We know that malaria (ague) and yellow fever are spread exclusively by the bites of mosquitos. We know that the destructive Texas fever, red-water or blood murrain of cattle, and similar diseases of the dog, horse, sheep and birds, as well

as of man, are propagated by the bites of ticks. We know that the Nagana and Surra of animals and the sleeping-sickness of man are spread by the bites of Tsetse flies. My predecessor in this rostrum last year—Professor Theiler—is one of the leading workers in this particular field of research, and your Principal, Professor Mettam, has also conducted some most important research work in this department. Quite recently we have learnt, mainly from the work of Nicolle, Sergent and Foley, that Relapsing fever and Typhus, which are always associated with dirt, misery, and over-crowding, are propagated by the very parasites which most abound on the person of such wretchedly circumstanced individuals. The parasite of Relapsing fever is a spirillum—an organism shaped like a corkscrew and readily observed. That of Typhus has hitherto remained unseen.

The bearing of this work on the prevention of Typhus is obvious, and is likely to prove of good service here in Ireland, where outbreaks of the disease still continue to occur.

The question has recently been raised by Borrel as to whether certain forms of Cancer, more especially those occurring on the face of elderly, and not over-cleanly individuals, may not be connected in some way with the presence of a minute Acarian, or mite, which is a frequent denizen of the hair follicles and sebaceous glands. Borrel finds this little parasite, which is called *Demodex folliculorum*, especially abundant in the regions where the cancerous process is just about to develop, and suggests that it may be the carrier of an invisible virus, which, once introduced into the epithelial cell, confers upon it the capacity for unrestricted multiplication that is the characteristic of cancer-cells. M. Borrel, who is one of the ablest workers at the Pasteur Institute, points out how well this hypothesis would account for the heavy incidence of cancer in certain families, in certain houses, and in certain regions. He also appeals to the fact that many tumour-like outgrowths on the higher plants known as "Galls," are caused by the irritation of mites. Borrel, moreover, appeals to Leprosy as an analogous case. This disease very often begins in the skin of the face, but exactly how the germ is carried in,

still remains obscure. Borrel finds the same little mite *Demodex* in the skin of cases where the leprosy process is just commencing, and suggests that the mite may be the carrier of the bacillus. And, if it may carry the visible bacillus of leprosy, why not the invisible virus of cancer? The theory is suggestive, but leaves so much unexplained that it will be well to keep an open mind on the subject until further information comes to hand. Meanwhile, the subject of the causation of cancer is being vigorously attacked by investigation in every civilised country. Innumerable experiments have been carried out on mice and rats, the tumours of which are those most readily transferred from one animal to another. So far, however, the results obtained seem hardly commensurate with the immense labour that has been devoted to the subject. Clearly the key to the problem as to the causation of cancer is one that lies very much hidden away, deep in the depths of the Unknown. The divers that science is sending down in search of that "pearl of great price" have as yet failed to reach it. The problem is one that concerns you veterinarians, for all of our domestic animals are liable to the disease, though hardly to the same extent as the human species. Amongst recent researches bearing on the point I would refer to that of Peyton Rous, of the Rockefeller Institute, who describes the first inoculable tumour of the common fowl, hitherto observed, a spindle-cell-sarcoma occurring in a pure-bred Plymouth Rock hen. He succeeded in transferring this new growth to other fowl, but only to those that were close blood-relations of the fowl in which the original tumour occurred. This shows how very restricted the virus of cancer—if there is such a thing—is, with regard to the subjects in which it will grow. It is no wonder that efforts to transplant it from one species of animal to another fail, when even within the narrow limits of a variety, as in the present case, transference fails save amongst blood-relations.

Such are a few of the leading tendencies that are to-day dominating research on the biological side of Human and Veterinary Medicine. There are many others which I have not touched upon, such, for example, as the therapeutical

application of radium, and the deliberate utilisation of chemical theory in the construction of new drugs, like Ehrlich's now famous "number 606." But I feel that I have said enough, and will conclude by expressing the hope that under the guidance of the Principal and his able Staff of Professors this, the eleventh session of the Royal Veterinary College, may prove no less successful than its predecessors.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following gentlemen, having passed the requisite examinations, were at a meeting of the College held on October 19, 1910, admitted Fellows:—John Ewing Adam, M.B., C.M., D.P.H., Whinneyhill, near Rotherham; James Christopher Reginald Braine-Hartnell, M.R.C.S. Eng., L.R.C.P. Lond., Cheltenham; John Crosthwaite Bridge, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Camb., Dunfermline; Martin Binns Studer Button, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A. Lond., Deal, Kent; Basil Patrick Campbell, M.B., Ch.B., Edinburgh; Denis Cotterill, M.B., Ch.B., Edinburgh; Oscar Chipman Dorman, M.D., M.R.C.S. Eng., L.R.C.P. Lond., Winnipeg, Manitoba; Edward Charles Dutton, M.B., Ch.B., Manchester; William Fleming, M.B., Ch.B., Shantung, N. China; Joseph Strickland Goodall, M.B., L.S.A. Lond., London, W.; William Lennox Gordon, M.B., Ch.B., Edinburgh; Rowland Hill, M.B., Ch.B., Whiteabbey, Co. Antrim; Emerson Le Roy Hodgins, M.R.C.S. Eng., L.R.C.P. Lond., Lucan, Ontario; Isaac Wellwood Johnson, M.D., L.R.C.S.E., Bury, Lancs.; James Wilson M'Intosh, M.B., Ch.B., B.Sc., London, S.E.; Charles MacLaurin, M.B., C.M., Sydney, N.S.W.; Samuel M'Murray, M.B., Ch.B., Belfast; Murat Marcus Mamourian, M.B., Ch.B., Ashton-under-Lyne; Hugh James More, M.B., Ch.B., Edinburgh; Cecil Charles Murison, L.R.C.S.E., D.P.H., Captain, Indian Medical Service; John O'Doherty, L.R.C.P.I., L.R.C.S.I., Belfast; Sorabji Pestonji Shroff, L.M. & S., L.R.C.S.E., Edinburgh; Archibald Simpson, M.B., Ch.B., Tranent, East Lothian; Victor Field Usher, M.B., Ch.B., Nelson, New Zealand; Penrose Lanyon Watkin-Williams, M.R.C.S. Eng., L.R.C.P. Lond., Bridgwater, Somerset; Richard Wilkins, M.B., Ch.B., Longton, near Preston; Horace Joseph Williams, L.R.C.S.E., Plumstead, Cape Colony.

PART II.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

RECENT WORKS ON SYPHILIS.

1. *A System of Syphilis.* In Six Volumes. Edited by D'ARCY POWER, M.B. Oxon., F.R.C.S.; and J. KEOGH MURPHY, M.D., M.C. Cantab., F.R.C.S. With an Introduction by SIR JONATHAN HUTCHINSON, F.R.S. Vol. V. The Affections of the Skin in Syphilis, by PHINEAS S. ABRAHAM, M.D., F.R.C.S.I., and HALDIN D. DAVIS, D.M. Oxon., F.R.C.S., M.R.C.P. Ocular Syphilis, by C. DEVEREUX MARSHALL, F.R.C.S. Aural Syphilis, by C. ERNEST WEST, F.R.C.S. Syphilis in the Upper Air Passages, by ST. CLAIR THOMSON, F.R.C.P., F.R.C.S. Royal 8vo. Pp. 356 + viii. (53 plates and four figures.) London: Henry Frowde, Hodder & Stoughton, Oxford University Press.
2. *Syphilis: Its Diagnosis and Treatment.* By F. J. LAMBKIN, Col. R.A.M.C.: Lecturer on Syphilology, Royal Army Medical College, London: late Specialist at the Army Headquarters, India, &c. With Preface by SIR FREDERICK TREVES, Bart., G.C.V.O., C.B., LL.D. Demy 8vo. Pp. vi + 195. London: Baillière, Tindall & Cox.
1. THE fifth and penultimate volume of the "System of Syphilis," edited by D'Arcy Power, M.B. Oxon., F.R.C.S., and J. Keogh Murphy, M.D., M.C. Cantab., F.R.C.S., resembles the first three volumes of this publication in being the production of several authors. The fourth volume, it may be remembered, was the sole work of Dr. Mott, and dealt exclusively with "Syphilis of the Nervous System." More than half of the total bulk of the present volume is devoted to "Affections of the Skin

in Syphilis," and is written by Phineas S. Abraham, M.D., F.R.C.S.I., Surgeon for Diseases of the Skin to the West London Hospital, in collaboration with Haldin D. Davis, D.M. Oxon., F.R.C.S., M.R.C.P., Physician to the Skin Department, Paddington Green Children's Hospital; Chief Assistant, Skin Department, St. Bartholomew's Hospital. We are of opinion that one-half of the amount of space used by these authors would have been ample for their purpose. We cannot account for their including some fourteen pages of more or less obsolete and useless classifications of skin diseases in their text but for the dearth of more interesting matter with which to *extend* their manuscript. Inclusiveness is a commendable property in a work of this sort, but it should not be so laboured as to risk wearying the reader, and thus to mar the utility of their writings. The authors seem to be cognisant of the tendency of dermatologists to invent names for what are the same disease or merely stages in the development of a particular lesion. In referring to "*impetigo rodens*," which term is included by Fournier under the heading of Impetiginous Syphilide, they add—"One may say with safety that the distinction between '*Impetigo rodens*' and the true erythymatous lesion is very fine drawn." We may make an appropriate digression here and point out that, whereas the other volumes of this "*System of Syphilis*" have on an average thirty-seven lines to a page, the present volume has only an average of thirty-one lines.

The authors also, we think unnecessarily, mention the constituents of black wash. They say—"The well-known black wash or *lotio nigra* of the British Pharmacopœia, which consists of 30 grains of calomel to 10 ounces of lime-water with some mucilage of tragacanth," &c. They neglected to state that the British Pharmacopœia preparation contains 5 per cent. of glycerin. Again, they tell us that the old *lotio rubra*, as formerly given in the British Pharmacopœia, possessed a strength of five grains of zinc sulphate to the ounce. We

can find no mention of it in the Pharmacopœias issued during the last forty-three years, and are informed by responsible authorities that such a lotion never was contained in the British Pharmacopœia!

In speaking of the arsenical treatment of syphilis they say—"They do not propose to enumerate the ingenious names given by imaginative chemists to atoxyl and other arsenical compounds, with which *physicians who are willing to risk the supervention of optic atrophy are tempted to dose their patients.*" The italics are ours. Colonel Lambkin, in the second volume of the "System of Syphilis," page 311, says that to his mind it "is now well established that in arylarsonates we have a second specific for syphilis, the importance of which cannot well be exaggerated." And now, two years later, in his work just published, "Syphilis: Its Diagnosis and Treatment," he continues to express his faith in, and admiration for, the efficacy of these preparations.

For the rest, we may add that the 180 pages of the volume before us, which treat of the "Affections of the Skin in Syphilis," contain all that is important and useful to know on the subject.

"Ocular Syphilis" is the title of the second article in the book, and is written by C. Devereux Marshall, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, &c. In the fifty-two pages at the author's disposal he has embodied a really excellent monograph on the subject with which he deals. There is not one word more than necessary contained in the text, and he writes as a master of his subject and as a teacher should. We are not here troubled with a repetition of the views of others, but receive the benefits of his own mature experience. He writes boldly and clearly. We find pleasure and instruction in reading his contribution to the volume.

In the diagnosis of various syphilitic conditions from those due to other causes he makes no allusion to the Wassermann and serum tests. This omission is most noticeable when he discusses the diagnosis and treatment

of a gumma and a glioma of the orbit. He says:— "Nothing is more annoying than to excise a tumour, wherever situated, and afterwards to find it is simply a gumma, and if an orbit is cleared out under the impression that it contains a malignant growth the consequences may be serious. On the other hand, it is still more serious to leave a malignant growth for any length of time under the impression it is a gumma." Modern laboratorial methods of diagnosis should elucidate these difficulties.

Dr. Marshall makes no allusion to the special syphilitic significance of ophthalmoplegia externa; indeed, this term does not find a place in his nomenclature of diseases of the eye, &c. He, however, says that "Paralysis of one or more ocular muscles is frequently caused by syphilis." Hutchinson says in his work on Syphilis, page 278—"Ophthalmoplegia externa appears to be in nine cases out of ten a consequence of syphilis." These omissions should not detract from the very high commendation the work deserves. Oculists, syphilologists, and general practitioners will find much that is useful to them in this article.

"Aural Syphilis," by C. Ernest West, F.R.C.S., Aural Surgeon to St. Bartholomew's Hospital, &c., constitutes the third portion of the book, and, like its predecessor, it is a valuable contribution to the volume. It has evidently been prepared in a conscientious and painstaking manner. Mr. West correctly states that the prognosis of secondary syphilitic deafness is very unsatisfactory. We regard a suddenly arising deafness which occurs during the second stage of syphilis as practically a hopeless condition. We had recently, however, such a case, and are happy to record what is apparently a complete recovery. The patient was not examined by an aurist, and possibly some minor deficiencies might be discoverable in one or other ear by more precise means of diagnosis than those to which we submitted our case. The treatment consisted in iodide of potassium and mercurial inunctions, hot baths and disinfectants. About three months later the individual to whom we refer fell in a shop unconscious, and

was partially paralysed on the left side for three or four weeks afterwards. Three weeks' treatment in bed was sufficient to enable him, although under our protest, to resume his employment as a commercial traveller. He now has deficient knee reflexes, disturbance of sensations for heat and cold in his right leg, and a feeling of weakness in the left leg, which latter, however, has a fairly active knee reflex. There are no eye symptoms or Romberg's or Babinsky's signs.

At the conclusion of this article, Mr. West has compiled a very complete bibliography on the subject.

St. Clair Thomson, M.D., F.R.C.P., F.R.C.S., Professor of Laryngology to King's College Hospital, &c., furnishes the concluding chapters of the book, his article being entitled "Syphilis in the Upper Air Passages." The first thing that attracts our notice is the manner in which the text generally refers to the wrong plates illustrating it. For example, Plate XLIX. depicts a chancre of the vestibule of the nose, and in the text is referred to as Plate XLVII. For the illustration of a perforation of the hard palate which permits of a probe being passed into the floor of the nose, we are directed to consult Plate XLIX. The most flagrant example of these errors consists in mentioning a plate (XLV*a*) which is that of a cross-section of the first turn of the cochlea in a case of tertiary syphilitic deafness, whereas the figure meant to be referred to in the text is intended to illustrate a perforation of the soft palate. The author reminds us that necrosis in the nose is almost unknown except in connection with syphilis. Also, that "an ulcer of any kind in the pharynx should always arouse a suspicion of syphilis, particularly if the base of the ulcer is covered with a dirty-grey slough and the margins are thickened. Indeed, it may be accepted that any ulcer in the pharynx is, in the large majority of cases, syphilitic in origin." We are glad to read this in the writing of so great an authority as the author. It entirely harmonises with our own opinion. But for the errors in alluding to the plates—which are probably the work of that scape-goat,

the printer's devil—we can find nothing but praise for the article.

In conclusion, we have no hesitation in declaring this volume a thoroughly trustworthy and reliable guide, not only for general practitioners but also for those more generally engaged in the treatment of diseases affecting the several portions of the body dealt with by the authors. The section on skin diseases is, we think, too lengthy—too much waste perhaps—but nevertheless golden grains and gems of knowledge are abundantly found in it.

We strongly recommend this volume to our readers.

2. "SYPHILIS: ITS DIAGNOSIS AND TREATMENT," by Colonel Lambkin, R.A.M.C., is an interesting work on the subject of its title. The book is printed in good type on a fair quality of paper. There are no illustrations within its covers. With the exception of mentioning the names of individuals who have invented mercurial creams, or who adopt particular forms of treatment, there are very few references in the text. There is no bibliography. In fact, the volume is, for all practical purposes, a description of the author's own views on the subject and the treatment he considers best—intramuscular injections of the "cream" devised by him and now generally used by Army Medical Officers.

His description of the history of syphilis reads familiarly. In the first volume of a "System of Syphilis" Dr. Iwan Block, Berlin, has written a "History of Syphilis," in which he says:—"One single skeleton found in the whole range of the Old World which could be referred indubitably to a period prior to 1493, and which bore undoubted traces of syphilitic disease, would at once put an end to the whole discussion upon the age and origin of this complaint." Colonel Lambkin, dealing with this particular point, says:—"The existence of one bone in this condition, which, at the same time, could be taken for certain to be of prehistoric origin, could be at least referred to a period prior to 1493, would at once put an end to discussion as to the age and origin

of the complaint." The resemblance of these passages to each other may be pure coincidence. If not, reference to Block's article might have been acknowledged as the source of information.

On page 8 the date of Schaudinn's discovery of the *Spirochæte pallida* has been misprinted. However, further on in the work the correct year—1905—is given. The author divides the stages of syphilis into six divisions, which are easily remembered and serve to emphasise periods for purposes of clinical teaching rather than for diagnosis or treatment. The syphilologist would be unceasingly in trouble were he to base his diagnosis of syphilitic manifestations on the time of his watch.

Colonel Lambkin includes Fournier's now familiar statistics showing the proportion per hundred cases of cerebral syphilis which have had either no treatment at all, or insufficient, or thorough treatment. This table is an illustration of how figures may be made to prove anything. Of 100 cases of cerebral syphilis, five only had had thorough treatment, whereas 95 had had insufficient treatment. We trust we shall not be misunderstood as being anything but convinced partisans for thorough treatment when we point out from the figures supplied in Fournier's statistics, that:—

Four per cent. occurred after *no treatment*

Five per cent. occurred after thorough treatment.

Twenty-five per cent. after insufficient or no treatment.

Ninety-six per cent. after thorough or insufficient treatment.

There is one omission in the volume which, we think, it would be an advantage to correct in any future edition of Colonel Lambkin's work. We allude to the necessity of examining the urine for mercury as a guide to its assimilation. The instance given by the author of a patient who had taken 10 grains of blue pill daily for a period of three months without any physiological effects having been produced, and in whose case it was subsequently discovered that the pills were regularly voided

in the same condition in which they had been taken. Such an occurrence as this could scarcely happen if the urine had been examined for mercury.

We have formed a very high opinion of the author's work, which is undoubtedly one of the most authoritative and important published in the English language.

There are three things contained in the book that please us greatly.

First, Colonel Lambkin shows in parallel columns the differences between yaws and syphilis. It may be remembered that he was commissioned by the Government to visit, investigate, and report on the prevalence of syphilis in Uganda. While in that country he had ample opportunities for contrasting these two diseases. He on one occasion told us that "Uganda was full of yaws." We are willing to accept his evidence as conclusively proving the duality of these diseases.

Secondly, we appreciate the importance he attaches to Wassermann's reaction as enabling us to determine when a given case of syphilis is cured. So far this has been impossible.

Thirdly, he points out that instead of waiting till the patient's body shows unmistakable evidences of syphilis, and his system has become saturated with spirochætae, we should have his serum examined, and on obtaining a positive report should commence treatment at once.

The student and practitioner cannot obtain a better text-book on syphilis than this by Colonel Lambkin.

S. S.

The Mental Symptoms of Brain Disease. By BERNARD HOLLANDER, M.D.; with Preface by JUL. MOREL. London: Rebman, Ltd. 1910.

THE object of this book is to prove that definite portions of the cerebral cortex subserve definite mental processes. In attempting to prove his thesis the author has collected and analysed a large number of reported cases of focal disease of the brain attended by disturbances of the

mental faculties. He maintains—and we believe quite correctly—that the only method of arriving at any conclusion regarding localisation of mental processes in the brain is by careful comparison of the mental symptoms exhibited during life with the *post-mortem* appearances of the brain. So evident a proposition, however, can hardly be regarded as novel, but the author undoubtedly deserves credit for attracting the attention of medical men as a whole to the subject. Alienists and psychologists will hardly require any stimulus in this direction. In collecting his cases and analysing them the author seems in many instances to have assumed the existence of lesions which are by no means proven, and as his deductions must necessarily be fallacious if his premisses are unsound we fear that but little attention will be paid by accurate thinkers to some of his arguments. The assumption that mental symptoms accompanying lesions of the ear are in all cases the result of a lesion of the temporal lobe of the brain, for example, is one that can hardly be seriously maintained. Again, the author seems to us to have accumulated positive evidence without paying much attention to negative evidence. In order to prove a proposition regarding cause and effect it is not merely necessary to prove that the alleged cause and the alleged effect frequently occur in association, but it is also necessary to prove that the one does not occur without the other. Now, the author has collected a number of cases in which mania and irascibility accompanied alleged lesions of the temporal lobe, but he says nothing as to the existence of lesions of that lobe unaccompanied by such phenomena, nor of the existence of mania without such lesions. Possibly no such cases as we suggest are known to exist, and in any case in dealing with medical subjects we must be careful not to ask for too much in the way of proof; but a few remarks on the lines we indicate would, we think, have improved the tone of the work.

The chapter on the functions of the frontal lobe is, in our opinion, the most complete, and it is most carefully and scientifically written. The general deductions regarding

the localisation in it of certain mental faculties appear fairly sound. The remainder of the book, dealing with the parietal, temporal, and occipital lobes, and with the cerebellum, are well worth reading, and may prove stimulating to further research. If they do this the author's hope will be fulfilled. Incidentally we may add that one cannot help being struck by the fact that very few of the cases recorded have been from personal observation on the part of the writer. His industry in collecting data by a thorough search through medical literature is undoubted, but one would feel more confidence in his judgment if he had given evidence of more personal experience, and if fewer of the collected cases dated back to or beyond the seventies. While offering these few criticisms we by no means wish to belittle the work as a whole. We ourselves read it with much pleasure, and can commend it to all those who are interested in the subject.

Living Anatomy and Pathology. The Diagnosis of Disease in Early Life by the Röntgen Method. By THOMAS MORGAN ROTCH, M.D. Philadelphia and London: J. B. Lippincott Company. 1910. 8vo. Pp. xxv + 225.

IN radiography, when the intricacies and technique have been overcome, and the radiographer is able to obtain good radiograms and screen effects from the various parts of the body, the use of these is often limited by the great difficulty which exists in their interpretation. The knowledge necessary to properly interpret results obtained by the Röntgen method can be obtained only by experience gained from a very large number of examinations, followed, where possible, by confirmation at operation or on the *post mortem* table, or by means of a work such as the present, which gives the interpretation of radiograms by one who has had such experience.

In this work the information which can be gained by X-ray methods in health and disease in early life is explained, and a very large number of excellent radiograms

are reproduced with clear interpretations of the different appearances seen in them.

The author states in the preface that the radiograms reproduced in the text are untouched, and this would appear to have been faithfully carried out, thereby greatly enhancing the value of the book. The book begins with a series of radiograms from normal subjects, extending from late intrauterine life through childhood; and the second chapter, or division, is devoted to the illustrative use of living normal anatomy, and, following this, diseases of the new-born with congenital malformations and the characteristic living lesions of diseases of nutrition.

The book is divided into groups representing living pathological conditions. One division is devoted to the head and spine, the next to the thorax, and then the abdomen.

Following this, illustrations of foreign bodies in various parts of the body are given, and finally a group comprising the diseases of the extremities.

This method of grouping makes the book very useful for reference, as all the information contained in it with reference to any given region can be referred to quickly and can be easily assimilated.

The work as a whole is well produced. The printing is clear and good, the illustrations are well selected and reproduced from what must be a very fine collection of radiograms.

Medical Examination of Schools and Scholars. Edited by T. N. KELYNACK, M.D. London: P. S. King & Son. 1910. Demy 8vo. Pp. xvi + 434.

THIS work deserves the attention of all medical men and others interested in the welfare of school children.

Its aim is practical—to provide a complete guide for school medical officers in the matter of the organisation and administration of school hygiene.

The book is edited by Dr. Kelynack, and there are no less than thirty-six different contributors, of whom many

are recognised authorities upon the subjects treated of. To review a book of the kind is an impossible task. It is a collection of brief monographs on the organisation and administration of school hygiene, dealing with primary schools and secondary schools, industrial schools and universities, girls' schools and army schools, and an account of what is done as regards medical examination of schools and scholars in England, Scotland, Wales, Canada, Australia, New Zealand, the United States, Germany, France, Norway, Sweden, Denmark, and Switzerland.

Even Ireland has a chapter to itself, but while other writers describe the medical inspection of schools which is carried out in their respective countries, Professor Lindsay has nothing to say but that in Ireland Medical inspection is unknown. The recent Act made medical inspection compulsory in Great Britain, but, unlike the Budget, the Act does not apply to Ireland.

The only inspection of schools in Ireland that exists is by the Inspectors of the National Board, who are not medical men, and their reports of the sanitary, or insani-tary, state of the schools in Ireland, including Dublin and Belfast, afford the strongest argument in favour of compulsory medical inspection of schools in this country.

But how can we expect our school arrangements in Ireland to equal those in more favoured countries so long as we have neither popular control nor expert management?

Professor Lindsay states that popular local control of primary schools, compulsory medical inspection, and a health schedule of each pupil "seem" to be essential.

Essential the latter two certainly are—there is no "seeming" about this matter in Germany, France, Switzerland, &c.—and popular local control may possibly obtain for our schools these essentials, if combined with local financial support, as is advocated by Professor Lindsay.

As regards medical inspection, we believe the present deplorable condition of our Irish schools cannot continue much longer now that medical inspection is established by

Act of Parliament in Great Britain. Under these circumstances we cannot too strongly advise all medical officers of health and managers of schools to study the book which has been edited by Dr. Kelynack, so that when the reform comes they may be in a position to work it to the best advantage.

Phases of Evolution and Heredity. By DAVID BERRY HART, M.D., F.R.C.P.E.; Lecturer on Midwifery, School of the Royal Colleges, Edinburgh. London: Rebman, Ltd. 1910. Cr. 8vo. Pp. xi + 259.

To whom this book is meant to appeal we do not know, as the author presents it prefaceless, presumably for the pleasure of all, both lay and medical, who take an interest in the study of heredity. Possibly, indeed, he wrote it more for his own pleasure than for any other purpose, for each essay of the fourteen contained within its pages gives one the impression of having been composed in thoughtful, pleasing hours, when the mind meanders somewhat, and, having dallied with a subject, realises that profit has resulted from its wandering thoughts. However this may be, the book is sure to appeal to a circle of readers who, educated beyond the novel stage, still feel that in their leisure hours some mental relaxation should be combined with mental elevation. Without going too deeply into details, Dr. Berry Hart writes illuminatingly and clearly on some of the problems of heredity and of evolution that wait solution, and that are at the present moment engaging the energies of numerous workers in all parts of the world. As a teacher Dr. Hart has learnt apparently the art of exposition, and is able without obtruding facts to work them into a tale which, while showing clearly what we know, still points out the path to fresh endeavour, and introduces side-paths of suggestive thought. In a series of essays, with the title we have already named, one naturally expects to find some account of Mendel and his work, and one is not disappointed, for the second, and we think perhaps the

best, of the essays is devoted to the elucidation of his views, while in the third essay a brief account is given of the man himself. The diagrams whereby Dr. Hart illustrates the Mendelian facts are simple and clever, and to many will, perhaps, throw a new light on the facts themselves, more especially as regards the relationship of the separate and yet combined entities, the somatic cell and the germ cell. The criticism of the stereotyped terms recessive and dominant is apt, and important if Mendelian theories and terms are destined to become, like Darwin's principles, a part of the common heritage of knowledge possessed by the board-school child. Already in scientific circles we have known the words to give rise to serious mistakes from a too liberal verbal interpretation of their meaning. It is a truism that technical words should be used only in the strictest sense of their definition; but it is equally true that when a technical word has become one of the counters of the man in the street, its definition is usually forgotten, and that its connotation becomes limited to the most pronounced of the various ideas that it should, by definition, evoke. In his chapters on Heredity and Heredity in Disease as applied to man, Dr. Hart faces some important problems and deals with them in a common-sense way. His deductions from Mendelian facts concerning individual variations well deserve the study of all entrusted with the education of the young. To the general practitioner also these chapters should prove useful from a professional point of view, as no one is, perhaps, so often called on as he, to give opinions which may perhaps influence the whole future career of some of his younger patients. One of the general conclusions that Dr. Hart arrives at is that "Legislation as to marriage on scientific lines would be a misfortune. We know too little to be able to do anything safely." A wise and inevitable conclusion, and one that makes us fear that perhaps what we think we know best in relation to heredity is also unsafe. Weissmannism may be true. We admit that the evidence in its favour is great, but while a doubt concerning its

complete truth exists it is an unwise theory to promulgate too widely. Wrapped up in the theory of the inheritance of acquired characteristics is a part of the feeling of responsibility which a man should feel in relation to his offspring, even those unborn. Surely if the belief is entertained that injudicious habits may prejudice the future of his children, a man will find therein an incentive over and above the self-respect he owes himself, to follow the highest in him. Our space is now exhausted, and we find that we have not really indicated the scope of the book before us. Possibly, however, our discursive remarks will suggest its character more than a detailed inventory could do. We have ourselves read it with much pleasure, and we hope that many of our readers will do likewise.

A Text-book of Medical Treatment. By WILLIAM CALWELL, M.A., M.D. London: Edward Arnold. 1910. 8vo. Pp. iv + 630.

THE author gives in this book the result of twenty years' experience in the practice and teaching of therapeutics. He has found it convenient to arrange his subjects alphabetically. This will doubtless help the busy practitioner in his search for methods of treatment with which he may be unfamiliar; and between "abdominal aneurysm" and "zona," the up-to-date treatment of practically every disease, common and uncommon, will be found alluded to more or less fully. The author by no means confines himself to the pharmaceutical measures suitable to an occasion, though these are given full prominence often in elegant prescriptions with their sponsor's name attached. He gives his views also as to hygiene, dieting, &c., and he does it all well. It is inevitable that we should disagree with him here and there and consider he has treated too cursorily methods which we favour, but we cannot accuse him of ever showing want of common sense in his views or of indulging in "fads" unworthy of his professional status.

The author has been assisted in his work by various writers on more special subjects—viz., William Graham, M.D., on "Insanity"; Thomas Houston, M.D., on "Vaccine Therapy"; John Campbell Rankin, M.D., on "Electrical Therapeutics"; Norman Barnett, F.R.C.S. Ed., on "Inebriety and State Treatment for Inebriates." It is only fair to say we consider he has been happy in his choice of collaborators.

The whole volume of 600 odd pages is well printed, bound, and indexed; it will form a valuable acquisition to the practitioner's library.

The Fifth Report of the Cancer Commission of Harvard University (founded by Caroline Brewer Croft, June, 16, 1899). (Formerly the Caroline Brewer Croft Fund Cancer Commission.) The Medical School of Harvard University, Boston, Mass. 1909.

THE first paper is a very able account by W. T. Councilman and G. B. Magrath on the pathology of Xeroderma Pigmentosum. C. A. Porter gives a full account of the surgical treatment of X-ray carcinoma and dermatitis, while the pathological histology of these affections is dealt with by S. B. Wolbach. The author regards the carcinomatous event as due to the effect of the rays on the connective tissue and blood supply—a view which harmonises well with Ribberts' theory of cancer origin. The whole subject is very fully dealt with.

A paper by Thomas Ordway shows that chronic inflammatory lesions of the pancreas are by no means uncommon in cats. They were no more frequent in cats fed with food preservatives than in the controls, and their cause is unknown.

E. E. Tyzzer and Thomas Ordway record in detail nine cases of tumours occurring in fowl. These include cases of myxo-sarcoma and leiomyoma—tumours which have not previously been described.

From Tyzzer's pen come two more articles dealing with mouse tumours. The first deals with the frequency of

spontaneous tumours in mice under observation—many of these, being internal, would doubtless have escaped notice but for most careful autopsies. The second paper on the study of inheritance in mice with reference to their susceptibility to transplantable tumours is most interesting. The author bears out what Bashford and others have shown, that racial differences in the mice is a most potent factor in susceptibility. His paradoxical findings on the susceptibility of hybrids is full of interest and most difficult to explain.

Burgess shows that the non-susceptible mouse develops in response to the inoculated tumour a reactive inflammation, which is absent in the susceptible animal.

A short paper by Stephen Rushmore adds condemnation to the already discredited action of trypsin on cancer cells.

F. P. Gay contributes an account of some interesting work on a transmissible cancer of the rat.

The volume contains a great deal of careful and accurate work. The micro-illustrations are excellently reproduced. The Cancer Commission and the authors are to be congratulated on its production.

Practical Medicine Series. 1909. Vol. VIII. Chicago: The Year Book Publishers.

THIS volume, dealing with three branches of medicine—Therapeutics, Preventive Medicine, and Climatology—has been compiled by Drs. Butler, Favill, and Bridge, respectively. About two-thirds of the book are given up to therapeutics and deal with reports on the action of various drugs, serums, vaccines, and of X-rays. The subjects are arranged alphabetically. Many drugs are mentioned which are not at all commonly employed in these countries. They may thus prove of interest, but as a rule the paucity of information regarding them, and the small number of instances reported in which they have been administered, will probably choke any enthusiasm to test their efficacy. Interesting matter will

be found under the sections dealing with vaccines, serotherapy, and X-rays, and under the head of Preventive Medicine are several good synopses. Climatology naturally occupies but a small portion of the volume. It contains numerous observations of the effect of climate on tuberculosis and other conditions.

Practical Physiological Chemistry. By R. H. ADERS PLIMMER, D.Sc.: Assistant Professor of Physiological Chemistry, University College. London: Longmans, Green & Co. 1910. Royal 8vo. Pp. viii + 270.

THE author states in his preface that this book was originally compiled as a handbook for practical work in physiological chemistry at University College, London, and adds that it represents an attempt to give to the worker a nearly complete statement of the whole subject. To those who are specialising in the subject with which it deals the work will prove invaluable, but for the ordinary medical student the course outlined is too elaborate, and we, therefore, hardly think that the book will ever come into general use as a medical text-book. It was, however, probably never intended for the use of pass medical students despite the fact that it covers all the ground with which they are expected to be familiar. The plan followed throughout consists in giving a short explanatory statement in connection with each section, followed by a list of carefully-selected and carefully-described elucidatory experiments. The composition of organic compounds, the detection of the elements they contain, the chemistry of the alcohols, esters, and ketones, the constitution of fatty acids and fats, the composition and reactions of the carbohydrates, the constitution and tests for the amines and proteids, are dealt with *seriatim*; and in what might be called the second part of the book the composition of the common food stuffs, the chemistry of digestion, of the blood, and of the urine are carefully and systematically illustrated. A sufficient number of figures in the text is provided, having regard to the fact

that the book is intended for laboratory work. Apart from its object in providing a complete course of practical physiological chemistry, the book will prove most useful as a reference volume to hospital teachers whose duty it may be to deal occasionally with the methods of modern chemical diagnosis. It is unnecessary to add that the book bears evidence of extreme care in its production, and is thoroughly accurate.

Uric Acid in the Clinic. By A. HAIG, M.A., M.D. Oxon.
London: J. & A. Churchill. 1910. 8vo. Pp. 306.

DR. HAIG is a prolific writer, yet to our mind he is singularly unconvincing, and appears to us to be a man affected with a monomania. He has mounted a hobby-horse—to wit, uric acid. Astride upon this valiant charger he bravely scatters the ranks of accepted classifications of diseases, and reassembles them into a single cohort under the banner of uric acid. How delightfully simple, if true!

In the gospel according to Haig an immense number of most diverse affections are due to the malignant influence of the demon uric acid, which must at all costs be exorcised, else, woe to the patient.

He airily classifies the diseases attributable to uric acid into two groups:—

(1) The far larger, and more important, *collæmic*, or, *circulation* group, in which the blood is thickened and its circulation hindered by floating particles of colloid uric acid.

(2) The *precipitation*, or *retention*, group, in which local retention of uric acid causes irritation and pain.

Similarly, he classifies drugs according as they are solvents or precipitants of uric acid. The present volume—with its inelegant title—consists mainly of clinical records adduced in support of these revolutionary and mechanical ideas, with a running commentary on each.

The main point in Dr. Haig's treatment is, naturally, a dietetic one, and he recommends two meals a day, and a

diminished amount of fluid. The book concludes with a grandiloquent peroration which we submit to the sober judgment of our readers.

"Prevention (of disease) consists merely in putting the animal, man, on his natural food from the time he leaves his mother's breast: and it is now clear that the manhood thus produced will be as superior to that of present conditions as light is above darkness, life above death, and truth above falsehood.

"What all civilised nations require to-day are men, whole, sane, complete men: they are perishing for want of them. Ever since I was a boy I have been lost in wonder at the historical record of the slow, yet apparently inevitable, perishing of what were once great and powerful races of men. I now see clearly at least one part of the causation, and thus understand that it is no longer inevitable; though I recognise also that the known cause is but a part of a greater and more universal one."

The Essentials of Histology, Descriptive and Practical, for the Use of Students. By E. A. SCHÄFER, M.D., Sc.D., LL.D., F.R.S.; Professor of Physiology in the University of Edinburgh; formerly Jodrell Professor of Physiology in University College, London. Eighth Edition. Longmans, Green & Co., 39 Paternoster Row, London; Bombay and Calcutta. 1910. 8vo. Pp. xi + 571.

In the number of this Journal for March, 1907 (Vol. 123, third series, No. 423, pages 190 and 191), we expressed the opinion that Schäfer's "Elements of Histology" should be in the hands of every student of medicine. By that opinion we are prepared to stand, having glanced through the eighth edition of this valuable and eminently successful work. The present issue is somewhat larger than that of January, 1907. The increase is mainly due to the insertion of additional illustrations, of which many are beautiful photographs of microscopic preparations. The book now contains 571 pages, or 64

more than were included in the seventh edition. But the paper is so delicate and thin that the volume is by no means unwieldy.

Certain of the methods of staining and technique described in the Appendix have been improved at the suggestion of Dr. Harold Pringle, now of Edinburgh, but a Graduate in Arts and Medicine of the University of Dublin, to whom Professor Schäfer gracefully expresses his acknowledgments in his modest Preface.

The Proposed Legislation in Regard to Anæsthetics and the Advantages it would confer on the Dental Profession. By FREDERIC W. HEWITT, M.V.O., M.D. London: John Bale, Sons & Danielsson, Ltd. 1909. 8vo. Pp. 20.

It is no new thing for the Medical Profession to seek, by restrictive legislation, to prevent the uninitiated from competing in practice with the regular members of the faculty. The plea has generally been the same, the safety of the public, though as a rule the protection of the profession has not been lost sight of. In studying these attempts in the past history of Medicine it has always seemed to us that their great weakness lay in the incapacity of the profession to carry out those obligations to which it claimed exclusive right. That incapacity has not always been acknowledged at the time when the claim was made, though in the light of subsequent knowledge it has been evident enough. This experience should, we think, have taught members of the profession the importance of seeing that their own house is in order before they proceeded to regulate that of others. What, then, is the state of affairs in regard to this matter of the administration of anæsthetics? For years past it has been the complaint of those interested in the subject that the administration of anæsthetics, whether as a science or as an art, has been systematically neglected by those who are responsible for the regulation of the medical curriculum. This neglect has

resulted in the placing on the Medical Register many men who have no experience whatsoever of the duties and obligations of an anæsthetist. In fact it is not too much to say that the majority of those medical men who have become skilled anæsthetists have done so as the result of study after they were qualified and not before. A medical diploma gave no guarantee whatsoever that its possessor had any skill or knowledge of the methods of obtaining general anæsthesia. Under these circumstances is it any wonder that the public failed to recognise the advantage of having a qualified medical man as an anæsthetist? In no part of professional work is practice more essential to success, yet practice was what the qualified man lacked and the unqualified man often possessed.

This was the state of affairs when the proposed legislation was suggested, and with the efforts of the profession to remedy this evil we are in full sympathy. A medical diploma should be a guarantee that its possessor has at least been instructed in this branch of his profession, and on those who believe this there rests a distinct obligation to press for its recognition with all the forces at their command. When this change has been effected it will be time enough, for the profession at all events, to press for restrictive legislation, for then medical men will not leave themselves open to the very obvious retort from their unqualified competitors.

Dr. Hewitt is not satisfied with this reasoning, and, since every medical man placed on the Register after the beginning of next year will have first to produce evidence of experience in the administration of general anæsthetics, he feels justified now in pressing for restrictive legislation in their favour. Frankly, we do not agree with him, and think it would better become the profession to prove its title to the privilege before asserting its claim.

Differing from Dr. Hewitt as we do in the fundamentals, it seems unnecessary to argue about the details; but we should like to point out to him that for years the

Dental curriculum in many schools has contained an obligatory course of anæsthetics, while, at the same time, a knowledge of medicine, surgery, and physiology has been insisted on, which is similar in kind, if not so minute in degree, as has been required of the medical candidate. In view of this it cannot be contended that the Dental profession has not done what it could to justify its title to the privilege of administering anæsthetics, and a study of its results will show that these efforts have not been in vain.

If we might presume to offer some advice to Dr. Hewitt it would be that he should concentrate his great abilities and energy on efforts to raise the standard of his own profession in regard to the administration of anæsthetics, and when he is satisfied with that he will be in a better position to regulate the profession of others. We believe that in following this advice he will find full scope for his energies for years to come.

T. P. C. K.

Medical Electricity and Röntgen-rays. With Chapters of Phototherapy and Radium. By SINCLAIR TOUSEY A.M., M.D.; Consulting Surgeon to St. Bartholomew's Clinic, New York City. Containing 750 practical illustrations; 16 in colours. Philadelphia and London: W. B. Saunders Co. 1910. 8vo. Pp. 1116.

THERE is much that is excellent in this somewhat ponderous volume. The author speaks from the point of view of a practical worker—his descriptions, if somewhat lengthy, are generally clear and his instructions are helpful. It is a pity that the useful portions of the book were not condensed into a volume of less than half the size. In the matter of useless repetitions the author shows scant regard for his readers' time, while many of the explanations, especially in the form of illustrations, are little short of an insult to one's intelligence, or at least serve no useful purpose.

Thus, in the earlier chapters on electricity we find the

coil and static machine described and explained, and when we come to the portion dealing with X-rays, instead of a reference we find a fresh description of these instruments.

It is difficult to understand what object, unless it be that of occupying space, is gained by such illustrations as Fig. 478—"Plate fogged by contact with envelopes and by sunlight penetrating them." Again, Fig. 496—to show the effect of rays "No. 3"—is perfectly useless in the reproduction, whatever value may attach to the original negative. Fig. 505—"Plate which has been exposed, but not yet developed"—borders on the ludicrous. These are but a few of very numerous instances throughout the book of careless composition. The author seems filled with a desire to put in everything he can find to hand. There is a considerable amount inserted on the purely photographic part. We are not in agreement with the author that photographic "developing factors" are suitable to X-ray work. The "outline" of a hand or a head will, with the same exposure, appear in the same length of time, but who will say that their development time should be equal? Again, what about hard and soft tubes?

We are not familiar with the use of the author's cellular diaphragm. The idea is undoubtedly sound if the partitions do not, by casting shadows, cause more obscurity than by intercepting secondary rays they relieve. We require clearer reproductions of radiograms taken by its use. Such as are given are by no means convincing.

Speaking of foreign bodies in the stomach and intestine the author says:—"A needle might escape detection." We think this a little euphemistic. He mentions a report that X-rays were used to locate "stolen property swallowed by criminals, and mentions the diamond mines in Japan." Surely, Dr. Tousey knows that a diamond being pure carbon is quite transparent. He does not vouch for the statement, but does not discredit it.

In dealing in detail with the radiographic examination

of the different regions of the body the author does not appear to follow any definite plan but rather to narrate details of a few cases of each part. These are often of no especial interest—*e.g.*, a case of simple fracture of tibia and fibula united with slight malposition.

A number of radiograms of injected arteries, &c., appear under the head of the value of the X-ray in the study of anatomy. They are well reproduced, but are more suitable to an anatomical handbook.

An attempt to swell the volume with matter good and bad, relevant and irrelevant, is apt to blind the reader to the undoubtedly valuable information it contains.

Advice to Consumptives. Home Treatment, After-care and Prevention. By NOEL DEAN BARDSWELL, M.D. Foreword by C. THEODORE WILLIAMS, M.D. London: Adam and Charles Black. 1910. 8vo. Pp. xv and 144.

How far the treatment of consumptives in special sanatoriums is an essential feature in their cure has not yet been satisfactorily settled, but that it is of benefit is admitted by all. In the majority of instances, at all events among the poorer patients, this benefit results as much from the educative influence of those in charge of the sanatorium as from the curative effects of the treatment itself. Few patients in the humbler ranks of life can afford to stay long enough at the sanatorium to effect a complete cure of their disease, and unless they are willing to continue the treatment after their departure from the sanatorium little or no benefit can be expected from their stay there. Our experience has shown us, however, that most patients are willing enough to continue this treatment provided they know what it is. We fear, in some instances, the necessity of sanatorium treatment is so much insisted on that the patient comes to look on it as the one thing needful, essential for improvement, and all-sufficing for a cure. That it is neither essential in all cases, nor all-sufficing in many, has been proved

again and again. In some sanatoriums this has been so well recognised that the medical officers have been in the habit of giving regular instruction to the patients under their care in the methods of treatment, both preventive and curative. Dr. Bardswell, Medical Superintendent of the King Edward VII. Sanatorium, has adopted this method, and the book before us for the most part embodies a series of such lectures delivered from time to time at that sanatorium. The advice is given in simple language, and the reason for the regulations is explained in a way that appeals to the intelligence of the patient, and so enables him not only to live himself in a healthful way, but to teach others to do so also.

The book is one which any physician can recommend to his patients, since in it there is much that will be helpful to every one, and nothing that will be harmful to any.

Hæmoglobinuria. By AMBROSE E. L. CHARPENTIER, M.D. Durham; D.P.H. London: Baillière, Tindall & Cox. 1910. Cr. 8vo. Pp. viii + 112.

In this little book the author has collected together most of the facts in relation to hæmoglobinuria and the theories connected therewith. No new facts, as far as we could ascertain, are recorded, with the exception of some interesting observations on the relationship of functional albuminuria to paroxysmal hæmoglobinuria. All the varieties of hæmoglobinuria are dealt with, but by far the greater part of the 92 pages in the book are devoted to the paroxysmal variety. A very complete bibliography is given, but in glancing at it one cannot help feeling that it is rather useless. A few outstanding names in connection with the subject are, no doubt, of interest to remember, but whatever was of value in a majority of the articles enumerated must have long since passed into current knowledge, and a collection of a mere list of the names of the authors seems rather waste of time. The cult of so-called medical literature appears to us to be rather overdone at the present day, when journals abound

and the number of separate papers on individual subjects far outnumber the ascertained facts in relation to the subject. We quite sympathise with those who collect and list papers which contain some new observation, but those articles which merely record a case and dress up old facts are meant to be ephemeral, and should be regarded as such. These remarks are not, however, intended to decry the value of the present brochure, which is an interesting and readable summary of the present state of knowledge regarding the condition with which it deals.

1. *The General Characters of the Proteins.* By S. B. SCHRYVER, Ph.D., D.Sc. Longmans. 1909.

2. *The Vegetable Proteins.* By T. B. OSBORNE, Ph.D. Longmans, Green & Co. 1909.

1. No one can fail to acknowledge that the proteins are, chemically and physiologically, the corner-stones of biochemistry, and yet it must be regretfully admitted that this part of biological chemistry is still in a rudimentary state of development.

All the more reason, therefore, why we should attempt to take stock of our knowledge, count our gains, and estimate our deficiencies.

This is exactly what Dr. Schryver has tried to do in the excellent monograph under notice. Classification and differentiation of proteins are primary objects to be determined, and, for purposes of identification and isolation, there are at present three methods available:—

(a) *Physical*—i.e., “Salting out”; optical rotation; electrolytic conductivity.

(b) *Chemical.* Composition; constitution; combinations; results of oxidation, and so-forth.

(c) *Biological.* The so-called precipitin reaction, used for distinguishing between human blood and that of other animals.

For the separation of proteins from each other we have still to rely on their differences of solubility in alcohol,

water, salt solutions, or dilute acids and alkalies. Independently of the incomplete and inexact results of such methods there are large classes of proteins to which even these imperfect methods are inapplicable, viz.—those which are quite insoluble in the solvents mentioned.

From the chemical point of view the two most weighty items are:—(a) The nitrogen-content and distribution in the protein molecule. (b) The sulphur-content. The percentage of sulphur may be regarded as one of the characteristic constants of a protein. It indicates the quantity of the cystin unit present in the molecule.

We can cordially recommend this valuable monograph to all who wish to make themselves acquainted with the existing state of knowledge on the properties of the proteins.

2. DR. OSBORNE is one of the small band of workers who have investigated vegetable chemistry on modern lines, and no one knows better than he that we are now only at the beginning of a serious study. The knowledge of the chemistry of the carbohydrates has been largely founded upon studies made with those of vegetable origin, and it may reasonably be expected that further study of the vegetable proteins will materially aid in the better and wider appreciation of protein matter in general.

There is, of course, nothing fundamental to distinguish vegetable from animal proteins as a whole, and they ought to be considered together.

Dr. Osborne presents us with a highly condensed, if somewhat dry, account of the chemical, physical, and physiological relations of vegetable proteins. Some idea of the literary labour involved may be gathered from the fact that for the compilation of the 99 pages of this monograph reference is given in the bibliography to more than 600 original papers.

The book will be indispensable for reference to all workers in vegetable bio-chemistry.

PART III.
MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR CHARLES BALL, F.R.C.S.I.
General Secretary—JAMES CRAIG, M.D., F.R.C.P.I.

SECTION OF ANATOMY AND PHYSIOLOGY.

President—T. H. MILROY, M.D., F.R.S.E.
Sectional Secretary—E. P. M'LOUGHLIN, M.B.

Friday, April 29, 1910.

THE PRESIDENT in the Chair.

Development of the Teeth in Primates.

PROFESSOR SYMINGTON, F.R.S., exhibited a number of skiagrams illustrating the development of the teeth in primates, and also the relation of the teeth to the maxillary antrum.

PROFESSOR M'LOUGHLIN asked if Professor Symington had made any observations as to the time of eruption of the permanent canine teeth in the male anthropoids, and the relation of that time to the time of eruption of the third permanent molars.

PROFESSOR SYMINGTON, in reply, said that some authors state that the canine tooth, especially in the gibbon, was very late in erupting. He had no suitable material for observation in the older stages, as apes in the Zoological Gardens died young, and there were certain objections to the use of the ordinary dried specimens. The teeth shook about in the cavities, and became readily displaced. Museum curators did not like skulls divided in the middle line, and satisfactory skiagrams could not be got with the entire skull. It was not easy to get a moist specimen of the older stages of the apes, but he hoped to get a complete series before long.

A Note on Superfoetation.

DR. CASSIDY showed a specimen of the above taken from a cat. It showed in the left horn of the uterus a well-developed embryo five inches long and six or seven weeks old. It possessed a fully formed placenta, umbilical cord four inches long, and membranes complete. Left horn contained a much smaller foetus two inches long, which was enveloped in its own bag of membranes. The uterine body was one inch long, half an inch broad, one-sixteenth inch in thickness. A septum divided it into two parts, extending to the external os. Decidua lined both horns. The right ovary showed a well-marked true corpus luteum, which was obviously of recent date, and accounted for the second embryo. The left ovary had a true corpus luteum, which was distinctly older than the one on the right side. The interest of the specimen lies in the fact that there were two embryos, one occupying each horn, and showing a great difference in period of growth. The smaller by no means represented a "blighted ovum," as both microscopically and on section it appeared quite normal. Before arriving at the conclusion that the specimen was a case of superfoetation, two essentials had to be satisfied—(1) Did ovulation and œstrum recur after the first fecundation? (2) Was there, anatomically speaking, a clear passage for a second male element at a later period? The recent appearance of the true corpus luteum in the right ovary appears sufficient justification for the recurrence of a second œstral period. The abdominal ostium of the right tube was still patent, and the passage from the external os was clear, owing to the presence of the septum and absence of decidua in the right half of the uterine body. Superfoetation is of not infrequent occurrence amongst mammals. Kroon (*Geburtshülfe kleineren Haustieren*) relates a case of a goat bred September 14, 1897, œstrum and copulation recurring fifty-two days later. One hundred and fifty-two days later she expelled three fully formed embryos, two living and one dead. Next day, when membranes were expelled, three more perfectly formed, but imperfectly developed, embryos were discovered. Tapken, quoted by De Bruin, gives a case of superfoetation in a sow which was bred on February 22, 1890. Œstrum and copulation occurred fourteen days later. In the following June she gave birth to seven live pigs, and fourteen days later to nine live and three dead pigs. Reasoning from these cases in mammals where a double uterus exists, and that, exceptionally, the

ordinary physiological rule of ovulation being in abeyance during pregnancy is dispensed with, superfœtation seems not alone possible, but extremely probable. Whether this applies also to human gestation is extremely doubtful. In the thirty-eight recorded cases of bicornuate uteri in women there is no case mentioned of superfœtation having occurred. Obstetrical literature contains several recorded cases of what presumably were instances of superfœtation, but whether true superfœtation occurs in the normal human uterus is very doubtful. With the thickened decidua blocking the lumen of the tube and the plug of mucus which blocks the cervical canal at an early date, the passage of another spermatozoön at later date is rendered very improbable.

PROFESSOR METTAM said he did not think it exceptional to find cases of that form of gestation, seeing that the animals had a bicornuate uterus. He had convinced himself that ovulation occurred during pregnancy, and that was probably the explanation of animals going a long time in pregnancy.

PROFESSOR THOMPSON said it did not seem beyond the bounds of possibility that the two were impregnated at the same time, and that for some reason one developed and the other did not. They saw the same thing in the seeds of plants.

DR. CASSIDY, in reply, said that, in looking for an explanation for these cases, we must ask ourselves the question—Was it possible for a spermatozoön to live in the passages for four weeks and then fertilise another ripe ovum?

Transposition of Viscera.

MR. SETON PRINGLE read a note on a case of complete transposition of the viscera. The condition was found in a man, aged twenty-seven, who was the subject of extensive cancer of the rectum. He opened the abdomen for the purpose of fully examining the extent of the disease, and, if removal was out of the question, of performing a colotomy. He found a transposition of all the abdominal organs, and as removal was impossible, did a colotomy, fixing a knuckle of iliac colon in an incision in the right inguinal region. The heart was also situated in the right thorax, the apex beat being in the fifth right intercostal space, one and three quarter inches inside the nipple line. Mr. Pringle, in referring to the theory associating cases of transposition with twin birth, pointed out that his patient said he was not one of twins, nor was there any record of a foetus papyraceus.

PROFESSOR DIXON said that, in twin formation, an early separa-

tion in the embryonic plate, so that the resulting twin embryos would be ventrally opposed, was held to afford an explanation of transposition of viscera in one of the embryos.

PROFESSOR M'LOUGHLIN favoured the view that "transposition" was dependent on a primitive vascular irregularity of the abnormal embryo. The direction of the first bend of the tubular heart was probably determined by the internal pressure on the wall of the vessel being greater on that side owing to the greater rush of blood from the left omphalo-mesenteric vein, which is larger than the right. An accidental cause leading to the production of a larger right vein would produce a primary bend of the heart to the left and so initiate the changes responsible for transposition of viscera in the thorax. Similarly a venous irregularity might be responsible for transposition of the abdominal viscera independently of the thoracic.

DR. RUTHERFORD said he thought it should be remembered that the opposite umbilical vein, even although at a slightly later period, enlarged considerably as compared with its fellow, so that it was, perhaps, going rather far to attribute the position of the heart to the influence of the blood flow through one of the veins bringing blood to it. Though the first bend of the heart was to the right, the great growth was afterwards to the left. It was interesting that in the development of the teleostean heart they had an early bend to the right, and that despite the fact that the pericardial cavity was very much larger than the contents of the cavity.

Anatomical Abnormalities.

PROFESSOR GEDDES showed specimens and lantern slides of developmental and acquired abnormalities met with in the dissecting room during the winter session 1909-10.

The first of these was an *abnormal nasal duct*, which opened into the middle instead of into the inferior meatus of the nose. On dissection it was found that there was a thin fibrous cord occupying the normal position of the duct. No record of a similar abnormality had been discovered in the literature.

The next specimens shown were *abnormal bicuspid teeth*. One of these was a second lower bicuspid of the right side, which possessed two distinct fangs, of which one was partially sub-divided so that the tooth showed indications of possessing three roots.

An *abnormal right lung* was next demonstrated. In it the oblique fissure was well formed, but there was merely an indica-

tion of the horizontal fissure. In addition there were two irregular fissures in the region of the apex, and a cardiac lobe was present. On dissection it was found that though the horizontal fissure was superficially absent, there was no structural reason, so far as the arrangement of the bronchi was concerned, why it should not have been present. The irregular fissuring at the apex was interpreted as representing an attempted development of two apices. This was deduced from the fact that there seemed to be two distinct apical bronchi. The condition of the lung in the seal, and the occasional condition of the lung in the human being, in which the vena azygos major lies in a deep groove separating what might be termed an internal apex from an external, was referred to. In this case the vena azygos major had been in its usual position.

Several *abnormal livers* were then demonstrated. One of these possessed no quadrate lobe, the ligamentum teres passing backwards immediately superior to the gall bladder. In consideration of the arrangement of the fissures on the inferior surface of the liver, it was suggested, as a possible explanation, that the umbilical vein had developed from the vein of the right side.

A cast of a *peculiar rectum* was then demonstrated. In this case the pelvic colon passed down the left side of the pelvic cavity, and after forming a U-shaped bend entered a greatly dilated rectum from below.

At the close of his demonstration Professor Geddes showed an *unusual cæcum and appendix*, and a series of photographs to illustrate the mechanical effects of a massive pleural effusion.

PROFESSOR SYMINGTON said Professor Geddes, in exhibiting the abnormal nasal duct, had mentioned that in certain animals it opened into the cavity by several orifices, and he would like to hear if Professor Geddes knew any in which it opened above the inferior turbinal. [PROFESSOR GEDDES: No.] The literature of abnormalities was so enormous that it was difficult to be certain; but it was a very unusual condition. With reference to the pleural effusion, he thought there was a very serious defect in the conducting of *post-mortem* examinations. It seemed to him that a great deal could be learned if some hardening fluid was injected and the organs were fixed in position. The object of the pathologist was to get the organs out of the body, and there was little attention paid to the topography of the body under pathological conditions. He took it that the grooves shown in the liver were due to some irregularity in the contraction

of the diaphragm, which was always found lying in the grooves. With regard to distended rectum, in some cases the folds in the rectum practically disappeared in the distention.

DR. MOORHEAD asked if Professor Geddes had had an opportunity of observing the position of the double fold of the pleura, which extended from the back of the heart to the vertical column. About a year ago one of the Keiths described a case occurring on the right side and displacing the pleural fold to the left side, and he regarded it as proving that the angle of dulness was due to actual displacement of the fold. Extreme difficulty was found in carrying out Professor Symington's suggestion with regard to *post-mortems*, which were generally done in a hurry, with friends waiting outside the door to inter the remains. As far as possible they aimed at letting the patient die with the fluid removed. When they did make use of a hardening agent, it was found to defeat one of the main objects of a *post-mortem*—the finding of the cause of the pathological condition. He would like to know if Professor Geddes found any cirrhosis in the liver which he described as having an extra lobe. He often saw the thin edge described, and he generally found it associated with extreme atrophy or cirrhosis.

PROFESSOR THOMPSON asked for particulars as to the age and sex of the cases of abnormal rectum, and whether there was evidence that the rectum had been used as a permanent receptacle instead of an evacuating mechanism.

PROFESSOR DIXON said they must all have been struck with the extreme constancy of the gall-bladder, though there did not seem to be any reason why it should always be in the position in which it was found. He only remembered one case in which it varied. He would be inclined to think, however, that, in Professor Geddes' case, it was the gall-bladder that was astray and not the vein. He would like to be convinced that the remarkable specimen of abnormal nasal duct was not caused by some surgical interference. The duct might have become blocked at some time, and an instrument might have gone astray and opened through the loose bone and tissue into the middle meatus.

DR. PEARSON said he had seen several gall-bladder operations in which the gall-bladder did not appear to be in its usual position, and was found in the middle line.

PROFESSOR M'LOUGHLIN asked if the root of the bicuspid tooth which was showing signs of division was the posterior root. If so, it would conform to the broad posterior root of the lower

bicuspid of the anthropoids. [PROFESSOR GEDDES: It was the posterior.] He would like to know if the so-called accessory lobe of the liver was a normal piece of liver, and if its ducts were traced.

PROFESSOR GEDDES, in reply, said he did not see any difficulty in believing that the abnormal duct was a developmental error. The matter was still under investigation, and microscopic slides would be made. The evidence in the case of the gall-bladder suggested the probability of its being a vascular error, and not a developmental error on the part of the gall-bladder. With regard to the question as to how the pleura was disposed, there was no doubt that the right pleural sac was very large posteriorly. One was hardly justified in suggesting that that was necessarily due to massive effusion, since they met the condition so frequently in cases where there was no effusion. The majority of the really large rectums were found in females, and there was usually a very large faecal load when the subject came in. But they had occurred also in men, and sometimes in young men.

Human Embryo of the Fifth Week.

DR. N. C. RUTHERFORD showed lantern slides of a human embryo of the fifth week. The first of these showed the opened chorionic vesicle, the embryo being enclosed in the amnion, while the yolk sac was still attached and lay in close proximity. The second showed the amnion opened, and a very well-preserved embryo lying inside. Other views of the embryo separated from the appendages were shown in conjunction with a millimetre scale which indicated its length to be almost exactly eight millimetres. The photographs were entirely untouched or retouched. The characteristics of this stage of development of the external form were clearly demonstrated by the various specimens. Such features as the protovertebral markings, the closing cervical sinus, the state of development and rotation of the limbs, the commencing appearance of the middle digit on the left side indicated the age of the specimen as almost exactly the middle of the fifth week. He was of opinion that the embryo had no exact counterpart among those collected by Keibel and Hochstetter. It was intermediate between Figs. XVIII. and XIX. of Keibel's "Normentafeln" and between Hochstetter's "Embryones Humani" Re III. and Ma I. That being the case, Dr. Rutherford expected that further examination of the specimen

by serial section and reconstruction would be productive of some profitable results.

Human Embryo showing Ectopia Cordis.

DR. RUTHERFORD further exhibited a lantern slide of the external form of a human embryo, showing ectopia cordis. He stated that, as was to be expected in such a pathological condition, the features of the external form were somewhat anomalous, and did not allow of any exact estimate of the age of the specimen. Judging, however, by the state of development of the limbs, he would place it early in the fifth week. The entire absence of an anterior wall to the pericardium was very plainly to be seen, the separate chambers of the heart being clearly visible on the surface. The thoracic defect reached forwards to the root of the neck, but fell short of the umbilicus behind. He attributed the condition to the failure of growth of the ventro-lateral process which springs from the protovertebrae, resulting in a defect analogous to that of spina bifida.

PROFESSOR DIXON asked if Dr. Rutherford had noticed little nodules in the amnion a short distance away from the embryo. They seemed to be common in the Rotunda cases, and it was thought that they were associated with syphilitic subjects.

PROFESSOR M'LOUGHLIN said that spina bifida had been produced experimentally by treating the eggs of tadpoles with a weak sodium-chloride solution. It was, consequently, suggested that some unusual chemical condition or irregularity of the blood of the mother was responsible for the condition of ectopia cordis. The condition of spina bifida had also been produced in a mechanical way by shaking. Was there a condition of the womb of the human mother that might be regarded as a parallel? It was not unlikely that a womb in an unhealthy condition would not allow the ovum to nest properly in the decidua. Improper nesting would lead to improper development of the chorion. This would lead to improper nourishment of the embryo, which would be the same as treating it with an abnormal fluid. Might not an endometric condition of the womb be a cause of such abnormalities?

DR. RUTHERFORD, in reply, said the question of the development of eggs in the unsuitable media was a very complicated matter, and the few facts known were insufficient to give a basis for any clear hypothesis. As far as he remembered, there was nothing abnormal in the amnion.

SANITARY AND METEOROLOGICAL NOTES.

VITAL STATISTICS.

For four weeks ending Saturday, October 8, 1910.

IRELAND.

THE average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ended October 8, 1910, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 15.9 per 1,000 of their aggregate population, which for the purposes of these returns is estimated at 1,151,790. The deaths registered in each of the four weeks ended Saturday, October 8, and during the whole of that period in the several districts, alphabetically arranged, correspond to the following annual rates per 1,000. In some cases, owing to deaths not having been registered within the week in which they occurred, the rates do not fairly represent the weekly mortality:—

TOWNS, &c.	Week ending				Average Rate for 4 weeks	TOWNS, &c.	Week ending				Average Rate for 4 weeks
	Sept. 17	Sept. 24	Oct. 1	Oct. 8			Sept. 17	Sept. 24	Oct. 1	Oct. 8	
22 Town Districts	17.0	17.5	17.8	15.9	17.0	Lisburn -	4.5	18.2	22.7	18.2	15.9
Armagh -	34.4	27.5	6.9	13.7	20.6	Londonderry	18.0	10.8	21.6	9.6	15.0
Ballymena	28.7	14.4	14.4	14.4	18.0	Lurgan -	17.7	22.1	13.3	13.3	16.6
Belfast -	15.5	16.3	14.0	12.5	14.6	Newry -	21.0	12.6	12.6	4.2	12.6
Clonmel -	25.6	20.5	10.3	20.5	19.2	Newtownards	11.4	17.2	11.4	—	10.0
Cork -	14.4	16.4	21.2	22.6	18.6	Portadown	20.7	5.2	10.3	10.3	11.6
Drogheda -	8.2	16.3	20.4	8.2	13.3	Queenstown	33.0	13.2	13.2	13.2	18.1
Dublin (Reg. Area)	18.8	21.4	20.2	19.5	20.0	Sligo -	4.8	—	43.2	4.8	13.2
Dundalk -	16.0	4.0	47.9	23.9	22.9	Tralee -	26.4	15.9	26.4	5.3	18.5
Galway -	11.7	19.4	31.1	15.5	19.4	Waterford	19.5	23.4	13.6	19.5	19.0
Kilkenny -	24.6	4.9	4.9	39.3	18.4	Wexford -	18.7	14.0	9.3	23.3	16.3
Limerick -	9.6	12.3	15.0	9.6	11.6						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases registered in the 22 districts during the week ended Saturday, October 8, 1910, were equal to an annual rate of 1.8 per 1,000, the rates varying from 0.0 in fourteen of the districts to 5.2 in Portadown—one of the 2 deaths from all causes for that district being from measles. Among the 94 deaths from all causes for Belfast were one from measles, one from whooping-cough, and 7 from diarrhoeal diseases. Of the 33 deaths from all causes registered in Cork 4 were from diarrhoeal diseases, and one was from diphtheria. Among the 7 deaths from all causes registered in Limerick was one from diphtheria, and 2 deaths from diarrhoeal diseases are also included in the 10 deaths from all causes registered in Waterford.

DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 402,928, that of the City being 310,298, Rathmines 37,047, Pembroke 28,948, Blackrock 9,013, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, October 8, 1910, amounted to 219—109 boys and 110 girls; and the deaths to 160—76 males and 84 females.

DEATHS.

Omitting the deaths (numbering 9) of persons admitted into public institutions from localities outside the Area, the death-rate was 19.5 per 1,000. The total deaths registered (151) represent a death-rate of 20.7 per 1,000 per annum. During the forty weeks ending with Saturday, October 8, the death-rate averaged 21.2, and was 2.9 below the mean rate for the corresponding portions of the ten years 1900-1909.

Among the deaths from all causes registered one death was from measles, one was from scarlet fever; 2 were from whooping-cough; 2 deaths were from diphtheria, 3 deaths from enteric fever (excluding one death from a locality outside the Area), and 12 deaths from diarrhoeal diseases, all being of children under 5 years of age. There were also 7 deaths from enteritis at the age. In each of the 3 preceding weeks there had been deaths from scarlet

fever, 2, 0, and 0; from enteric fever, one, one, and 0; from whooping-cough, 2, one, and 2; from measles, 0, 3, and 0; from diphtheria, 2, 3, and 2; and from diarrhoeal diseases, 21, 22, and 27. There was one death from influenza, which in each of the 3 preceding weeks had caused one, one, and 2 deaths, respectively.

Included among 5 deaths from pneumonia (all forms) were 2 from lobar pneumonia, one from broncho-pneumonia, while 2 were attributed to *pneumonia* (not defined).

There were 29 deaths from all forms of tuberculous disease. This figure includes 17 deaths from tubercular phthisis (*phthisis*), 2 deaths from tubercular meningitis, one death from tubercular peritonitis, and 9 deaths from other forms of the disease. In each of the 3 preceding weeks, deaths from all forms of tuberculous disease had been 24, 27, and 29.

Carcinoma caused the deaths of 6 persons, and there were 6 deaths from cancer or malignant disease (undefined).

The deaths of 5 infants were due to prematurity.

Of 15 deaths from diseases of the brain and nervous system, 9 were from *convulsions*. The latter figure includes the deaths of 4 infants under one month, 4 over one month and under one year of age, and one child aged one year and 7 months.

Twenty deaths were from diseases of the heart or blood vessels, and 15 deaths were caused by bronchitis.

Among the deaths from accident or negligence, which were 10 in number, one was caused by a motor car, 3 were of children under 5 years of age from burns or scalds, one was by drowning, and one of an infant by suffocation in bed.

In 3 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases comprise the death of one infant under one year old and the deaths of 2 persons aged 60 years and upwards.

Fifty-eight of the persons whose deaths were registered during the week were under 5 years of age (38 being infants under one year, of whom 11 were under one month old) and 35 were aged 60 years and upwards, including 23 persons aged 70 and upwards, of whom 6 were octogenarians, and one (a female) was stated to have been aged 90 years.

The Registrar-General points out that the names of the cause of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

The usual returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," and the "Tuberculosis Prevention (Ireland) Act, 1908," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. R. A. O'Donovan, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Bailie, Medical Superintendent Officer of Health for the City of Belfast.

TABLE SHOWING THE NUMBER OF CASES OF INFECTIOUS DISEASES notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended October 8, 1910, and during each of the preceding three weeks. An asterisk (*) denotes that the disease in question is not notifiable in the District.

CITIES AND URBAN DISTRICTS	Week ending	Small-pox	Measles	Rubella, or Epi- demic Rose Rash	Scarlet Fever	Typhus	Relapsing Fever	Diphtheria	Membranous Croup	Pyrexia (origin uncertain) ^a	Enteric or Typhoid Fever	Erysipelas	Puerperal Fever	Whooping-cough	Cerebro-spinal Fever	Tuberculous Phthisis (<i>Phthisis</i>)	Total
City of Dublin	Sept. 17	-	•	•	17	-	-	8	-	1	16	10	-	•	-	12	64
	Sept. 24	-	•	•	15	-	-	11	-	3	13	13	-	•	-	14	56
	Oct. 1	-	•	•	16	-	-	6	-	12	9	13	-	•	-	11	57
	Oct. 8	-	•	•	12	-	-	12	-	12	9	-	-	•	-	9	56
Rathmines and Rathgar Urban District	Sept. 17	-	•	•	-	-	-	-	-	-	-	-	-	•	•	•	-
	Sept. 24	-	•	•	-	-	-	1	-	-	1	-	-	•	•	•	2
	Oct. 1	-	•	•	3	-	-	3	-	-	-	-	-	•	•	•	6
	Oct. 8	-	•	•	2	-	-	-	-	-	-	-	-	•	•	•	12
Pembroke Urban District	Sept. 17	-	1	1	-	-	-	-	-	-	-	-	-	4	-	-	6
	Sept. 24	-	-	-	-	-	-	1	-	-	1	-	4	-	-	-	6
	Oct. 1	-	-	1	-	-	-	1	-	-	-	1	-	-	-	-	3
	Oct. 8	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	4
Blackrock Urban District	Sept. 17	-	•	•	1	-	-	2	-	-	-	-	-	•	-	•	3
	Sept. 24	-	•	•	-	-	-	3	-	-	-	-	-	•	-	•	3
	Oct. 1	-	•	•	1	-	-	-	-	-	-	-	-	•	-	•	1
	Oct. 8	-	•	•	-	-	-	-	-	-	1	-	-	•	-	•	1
Kingstown Urban District	Sept. 17	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Sept. 24	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Oct. 1	-	•	•	-	-	-	-	-	-	-	-	-	•	•	-	-
	Oct. 8	-	•	•	-	-	-	1	-	-	-	-	-	•	•	1	2
City of Belfast	Sept. 17	-	•	•	6	-	-	2	-	-	5	4	2	•	•	13	32
	Sept. 24	-	•	•	13	-	-	6	-	-	2	5	-	•	•	10	36
	Oct. 1	-	•	•	17	-	-	6	-	-	1	2	1	•	•	11	38
	Oct. 8	-	•	•	22	-	-	11	-	-	3	3	-	•	•	13	49

^a Continued Fever.

CASES OF INFECTIOUS DISEASES UNDER TREATMENT IN DUBLIN HOSPITALS.

During the week ended October 8, 1910, one case of measles was admitted to hospital, 5 were discharged, and 3 cases remained under treatment at its close.

Twenty cases of scarlet fever were admitted to hospital, 12 were discharged, there was one death, and 80 cases remained under treatment at the close of the week. This number is exclusive of 21 convalescents in Beneavin, Glasnevin, the Convalescent Home of Cork Street Fever Hospital. At the close of the 3 preceding weeks the cases in hospital had been 68, 68, and 73, respectively.

Thirteen cases of diphtheria were admitted to hospital, 3 were discharged, there was one death, and 54 patients remained under treatment at the close of the week. The cases in hospital at the close of the 3 preceding weeks numbered 38, 40, and 45, respectively.

Four cases of enteric fever were admitted to hospital during the week, 6 were discharged, and 47 cases remained under treatment in hospital at the close of the week, the respective numbers in hospital at the close of the three preceding weeks being 49, 44, and 49.

In addition to the above-named diseases, 5 cases of pneumonia were admitted to hospital, 4 were discharged, and 21 cases remained under treatment at the end of the week.

ENGLAND AND SCOTLAND.

The mortality of the week ended Saturday, October 8, in 77 large English towns, including London (in which the rate was 12.3), was equal to an average annual death-rate of 12.8 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 14.4 per 1,000, the rate for Glasgow being 14.9, and for Edinburgh, 13.9.

INFECTIOUS DISEASE IN EDINBURGH.

The Registrar-General has been favoured by A. Maxwell Williamson, M.D., B.Sc., Medical Officer of Health for Edinburgh, with a copy of his Return of Infectious Diseases notified during the week ended October 8. From this report it appears that of a total of 76 cases notified, 40 were of scarlet fever, 19 of phthisis, 12 of diphtheria, and 5 of erysipelas.

Among the 392 cases of infectious diseases in hospital at the close of the week were 206 cases of scarlet fever, 47 of phthisis, 91 of diphtheria, 10 of measles, one of chicken-pox, 14 of enteric fever, 11 of whooping-cough, 6 of erysipelas, and one of puerperal fever.

METEOROLOGY.

Abstract of Observations made in the City of Dublin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of October, 1910.

Mean Height of Barometer, - - -	30.023 inches.
Maximal Height of Barometer (5th, at 9 a.m.),	30.578 ..
Minimal Height of Barometer (31st, at 9 p.m.),	29.200 ..
Mean Dry-bulb Temperature, - - -	51.2°.
Mean Wet-bulb Temperature, - - -	49.4.
Mean Dew-point Temperature, - - -	47.5°.
Mean Elastic Force (Tension) of Aqueous Vapour,	.330 inches.
Mean Humidity, - - -	87.8 per cent.
Highest Temperature in Shade (on 1st),	63.4°.
Lowest Temperature in Shade (on 12th),	37.9°.
Lowest Temperature on Grass (Radiation) (12th),	35.1°
Mean Amount of Cloud, - - -	66.9 per cent.
Rainfall (on 18 days), - - -	2.222 inches.
Greatest Daily Rainfall (on 2nd),	1.083 ,,
General Directions of Wind, - - -	W.N.W., E

Remarks.

A mild, cloudy month, of N.W. and E. winds. Save for a downpour of rain (1.083 inches), accompanied by thunder and lightning, on the afternoon and in the evening of the 2nd, the rainfall, although frequent in the second half of the month, was small. Of the first 14 days, only 4 were "rain-days." After the 14th, there were only 3 rainless days out of 17. The clouded state of the sky was a feature of the month—the mean amount of cloud being 70.6 per cent. at 9 a.m. and 63.2 per cent. at 9 p.m. After the passage eastwards of a V-shaped thunderstorm depression on the 2nd, Ireland remained under anticyclonic conditions until the 10th, when another V-shaped depression came in from the Atlantic, causing a temporary break in the weather. The easterly winds of the latter part of the month were determined by the presence of an anticyclone in the N., and of a stationary depression over the Bay of Biscay and the Atlantic Ocean in the

same latitude. On the 31st, the first large and deep depression of the winter season spread quickly to the British Islands from the Icelandic region, producing a gale from S.W. to W. and a sudden and extreme perturbation of temperature.

In Dublin the arithmetical mean temperature (51.7°) was above the average (49.5°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 51.2° . In the forty-six years ending with 1910, October was coldest in 1892 (M. T. = 44.8°) and in 1896 (M. T. = 45.0°). It was warmest in 1908 (M. T. = 55.4°) and in 1876 (M. T. = 53.1°).

The mean height of the barometer was 30.023 inches, or 0.183 inch above the corrected average value for October—namely, 29.840 inches. The mercury rose to 30.578 inches at 9 a.m. of the 5th, and fell to 29.200 inches at 9 p.m. of the 31st. The observed range of atmospheric pressure was, therefore, 1.378 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 51.2° , or 3.6° below the value for September, 1910. The arithmetical mean of the maximal and minimal readings was 51.7° , compared with a thirty-five years' (1871–1905) average of 49.5° . Using the formula, *Mean Temp.* = *Min.* + (*Max.* — *Min.* \times .485), the mean temperature was 51.5° , or 2.2° above the average mean temperature for October, calculated in the same way, in thirty-five years, 1871–1905, inclusive (49.3°). On the 1st the thermometer in the screen rose to 63.4° —wind, S.; on the 12th the temperature fell to 37.9° —wind, W.N.W. The minimum on the grass was 35.1° also on the 12th.

The rainfall was 2.222 inches, distributed over 18 days. The rainfall was below, while the rainy days were equal to, the average. The average rainfall for October in the thirty-five years, 1871–1905, inclusive, was 2.870 inches, and the average number of rainy days was 18. In 1880 the rainfall in October was very large—7.358 inches on 15 days. In 1875, also, 7.049 inches fell on 26 days. On the other hand, in 1904 only .454 inch fell on 11 days, in 1890 only .633 inch fell on but 11 days; in 1884, only .834 inch on but 14 days; and in 1868 only .856 inch on 15 days.

High winds were noted on 8 days, and attained the force of a gale on 2 days—the 13th and 31st. The atmosphere was foggy in Dublin on the 6th, 7th and 21st. There was a lunar halo on the 18th. Thunder and lightning occurred on the

2nd. Hail fell on the 20th. The aurora borealis was seen on the 4th, 6th and 15th.

The rainfall in Dublin during the ten months ending October 31st, 1910, amounted to 27.330 inches on 177 days, compared with 21.106 inches on 158 days in 1909, 12.366 inches on 123 days during the same period in 1887 (the dry year), 20.466 inches on 145 days in 1901, 24.481 inches on 172 days in 1902, 27.882 inches on 196 days in 1903, 19.601 inches on 163 days in 1904, 20.462 inches on 161 days in 1905, 19.439 inches on 168 days in 1906, 22.261 inches on 182 days in 1907, 20.776 inches on 167 days in 1908, and a thirty-five years' (1871-1905) average of 23.030 inches on 164 days.

Mr. William H. Clark, B.A., reports that at the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 30.019 inches, the range of atmospheric pressure being from 30.578 inches at 9 a.m. of the 5th to 29.212 inches at 9 p.m. of the 31st. The mean value of the readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 52.0°. The arithmetical mean of the daily maximal and minimal temperatures was 52.1°. The screened thermometers rose to 64.9° on the 1st, and fell to 37.8° on the 12th. On the 9th the grass minimum was 30.4°. Rain fell on 14 days to the amount of 2.047 inches, the greatest fall in 24 hours being 1.120 inches on the 2nd. The duration of bright sunshine, according to the Campbell-Stokes recorder, was 60.3 hours, of which 9.0 hours occurred on the 12th. The mean daily sunshine was 1.9 hours. The mean temperature of the soil at 9 a.m. at a depth of one foot was 52.8°; at a depth of 4 feet it was 54.1°.

Dr. Christopher Joynt, F.R.C.P.I., registered 2.275 inches of rain on 18 days at 21 Leeson Park, Dublin, the largest measurement in 24 hours being 1.070 inches on the 2nd. The ten months' rainfall at this station is 29.035 inches.

Mr. T. Bateman reports that the rainfall at The Green, Malahide, Co. Dublin, was 1.305 inches on 10 days, the greatest fall in 24 hours being .645 inch on the 1st. The mean shade temperature was 48.8°, the extremes being—highest, 59.5° on the 1st; lowest, 34.0° on the 11th.

Captain Edward Taylor, D.L., returns the rainfall at Ardgillan, Balbriggan, Co. Dublin (height above sea level, 210 feet), as 1.19

inches on 15 days, the largest measurement in one day being .55 inch on the 2nd. The rainfall was 1.18 inches below the average and the rain-days were 2 in defect. From January 1 to October 31, the rainfall at Ardgillan has been 25.68 inches on 163 days, or 2.43 inches and 9 days above the respective averages. The highest shade temperature in October was 63.7° on the 4th, the lowest was 34.9° on the 31st.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, rain fell on 19 days to the amount of 2.27 inches, compared with 2.40 inches on 21 days in 1901, 3.45 inches on 24 days in 1902, 3.38 inches on 26 days in 1903, .42 inch on 9 days in 1904, 1.54 inches on 15 days in 1905, 4.52 inches on 24 days in 1906, 5.40 inches on 30 days in 1907, 1.77 inches on 15 days in 1908, and 3.02 inches on 25 days in 1909. The greatest measurement in 24 hours was .85 inch on the 2nd. The mean temperature in the shade was 51.4°, the range being from 62° on the 1st, 4th and 5th to 40° on the 20th and 31st. The mean temperature of October was 50.0° in 1901, 50.9° in 1902, 50.8° in 1903, 51.6° in 1904, 47.1° in 1905, 50.7° in 1906, 49.9° in 1907, 55.0° in 1908, and 51.6° in 1909.

At Manor Mill Lodge, Dundrum, Co. Dublin, Mr. George B. Edmondson measured 2.22 inches of rain on 20 days, the maximum in 24 hours being .85 inch on the 2nd. The mean temperature of the month was 50.8°, the thermometer rising to 70° (?) on the 6th and falling to 38° on the 31st.

The rainfall recorded at Cheeverstown Convalescent Home, Clondalkin, Co. Dublin, by Miss C. Violet Kirkpatrick, was 1.61 inches on 17 days. The heaviest rainfall in 24 hours was .65 inch on the 2nd.

Dr. W. S. Ross recorded 2.18 inches of rain on 20 days at Clonsilla, Greystones, Co. Wicklow, the greatest rainfall in 24 hours being .72 inch on the 2nd. The mean temperature for October was 49.5°. The shade thermometer rose to 66° on the 7th, and fell to 38° on the 30th.

At Knockdolian, Greystones, Co. Wicklow, Mr. R. Cathcart Dobbs, J.P., measured 2.870 inches of rain on 17 days, the maximal fall in 24 hours being .700 inch on the 2nd. From January 1 to October 31, 1910, the rainfall at Knockdolian amounted to 29.410 inches on 147 days.

Dr. J. T. Crowe reports that 2.62 inches of rain fell on 20 days at the Royal National Hospital for Consumption for Ireland,

near Newcastle, Co. Wicklow. The maximum in 24 hours was .85 inch on the 2nd. The mean temperature of the month at the Hospital was 50.7°, the extreme readings of the shade thermometer being—highest, 62° on the 5th; lowest, 38° on the 7th.

Mr. W. Miller states that in the City of Cork there were 20 days with rain during the month, or 2 days more than the average—total fall, 4.03 inches, which was 0.73 inch over the average. The greatest day's rain was that of the 29th—.78 inch. The rainfall of the past ten months was 30.61 inches on 178 days, which was 0.87 inch over the average for the same period. The rain-days were 22 in excess.

The Rev. Arthur Wilson, M.A., recorded a rainfall of 4.61 inches on 21 days at the Rectory, Dunmanway, Co. Cork. The heaviest fall in 24 hours were 1.00 inch on the 27th, .66 inch on the 1st, .64 inch on the 26th, and .63 inch on the 28th. Rain fell without cessation for 36 hours from 7 p.m. of the 26th. The average rainfall of October for the past 6 years is 5.73 inches.

Mr. William Holbrow reports a rainfall of 5.81 inches on 17 days at Derreen, Kenmare, Co. Kerry, the heaviest fall in 24 hours being 1.45 inches on the 1st. The weather was fairly fine at Derreen from the 2nd to the 24th. From the 26th to the 31st there was a stormy period.

At the Ordnance Survey Office, Phoenix Park, Dublin, the October rainfall was 1.584 inches on 18 days. The heaviest fall in 24 hours was .575 inch on the 2nd. The total amount of bright sunshine was 70.6 hours, the daily maximal duration being 8.3 hours on the 1st.

At the Royal Botanic Gardens, Glasnevin, rain fell on 18 days to the amount of 1.910 inches, the greatest daily fall being .87 inch on the 2nd.

THE QUEEN'S UNIVERSITY OF BELFAST.

THE following candidates have passed the D.P.H. Examination held in October, 1910:—R. G. M. Clements, M.D.; Charles Dickson, M.B.; G. W. McComb, M.B.; J. A. Sinton, M.B., D.P.H. Cantab. (passed with distinction and was awarded Special Prize).

PERISCOPE.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1911, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in Medicine, but cannot have been published. They must be typewritten, and must be received by the Secretary of the College, Thomas R. Neilson, M.D., on or before May 1, 1911. Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga Prize for 1910 has been awarded to Dr. M. Katzenstein, of Berlin, Germany, for his essay entitled "The Formation of an Arterial Collateral Circulation in the Kidney."

LITERARY NOTE.

MESSRS. BAILLIÈRE, TINDALL & COX, medical publishers, of London, announce that they have just published a small but important work entitled "Some Considerations of Medical Education," written by S. Squire Sprigge, M.A., M.D. Cantab. In this work the medical education of the country is briefly described, the position of the General Council of Medical Education and Registration is explained, and the valuable nature of the work done by this body is insisted upon. Opportunity has also been taken of reminding those who ignore the fact that the Council, which works for the Public and exists to see that the Public is served by a properly enrolled and adequately instructed medical profession, is supported pecuniarily by the Medical Profession. The various difficulties which have arisen from a

plethora of degree- and diploma-giving bodies, from an overcrowded curriculum, from an excessive elaboration of purely scientific instruction, and from other well-known reasons, are put out here briefly, and their solutions are discussed, with special stress upon the one-portal system.

A NEW MASSAGE METHOD.

At the Eighty-second Congress of German Naturalists and Physicians, held at Königsberg, Prussia, Dr. Adolf Schinée, of Schöneberg, Berlin, delivered two lectures on this subject. The lecturer at first referred to the recent articles on the subject in Nos. 30 and 31 of the *Medizinischen Klinik*, and again cursorily described his new massage apparatus, which for the greater part is capable of replacing the manual massage practised up to the present, and which, with only a third part of the exertion, not only acts much more intensively and thoroughly, but also has an exceedingly beneficial, agreeable and nerve-soothing effect. The massage apparatus in question, called by the inventor "E-las-to," with the aid of metal plugs actuated by springs, may be employed for tapotement, pétrissage, effleurage and frictional massage, and further allows of a combination of the above with thermal and electrical massage, thus considerably increasing the effects of the treatment. The experience gained in this respect up to the present is very promising for the therapeutical utilisation of this new massage method. The apparatus is handy, simple in construction, and, being easily cleaned or sterilised, is absolutely hygienic.

A REWARD OF MERIT.

The gold medal (highest award) has been conferred upon Messrs. Burroughs, Wellcome & Co. for their exhibit at the first International Shooting and Field Sports Exhibition Vienna, 1910.

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